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STANDING CONFERENCE OF PUBLIC ENTERPRISES



PSEs

Envisioning Viksit Bharat

SCOPE & PSEs celebrate Public Sector Day



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Message by Chairman

April is always a significant month for SCOPE. On the 10th of April each year, SCOPE organizes Public Sector Day celebrations, commemorating the significant contribution of Public Sector Enterprises (PSEs) in the socio-economic progress of the country.

I am happy to share that this year too, SCOPE is organizing Public Sector Day celebrations on 10th April and events will be organized reverberating the spirit of PSEs throughout the month.

Also, having completed a year as Chairman, SCOPE I would like to share that the apex body has been successful in undertaking several endeavours pursuant to its core objectives of Policy advocacy, interfacing with several national and international stakeholders, Capacity enhancement and building the brand of PSEs. At the recently held Board meeting of SCOPE, review of activities was undertaken and deliberations were made for the future vision and endeavours of SCOPE.

I am happy to share, that staying true to its vision of creating coherence amongst PSEs and as part of Public-Sector Day celebrations, SCOPE is opening the doors of 'SCOPE Social Interaction Centre (SSIC),' the first of its kind social interactive and recreational facility dedicated to the Public Sector fraternity in the heart of the city.

Also, as part of these celebrations, SCOPE is bringing out the special issue of KALEIDOSCOPE magazine on 'PSEs Envisioning Viksit Bharat.' This special issue features the initiatives undertaken by PSEs in various fields, facilitating the nation in becoming developed by the centenary of its independence.

SCOPE has always believed in taking its capacity enhancement opportunities to various parts of the country, not restricting only to the major cities. Our recently organised programs on Procurement and Right to Information, in Shillong, received an enormous response from our member PSEs and associates, which has further reinvigorated us.

As we stand at the threshold of another milestone in SCOPE's journey, I look forward to our members and various stakeholders for their ever-effervescent support, feedback, and suggestions.

I hereby take the opportunity to wish all of you a very Happy Public Sector Day and hope that the continuous efforts of PSEs, enable our great nation achieve newer heights of excellence.

Sandeep Kumar Gupta
Chairman, SCOPE

Programs and Activities of SCOPE

SCOPE undertook various activities in the past month for capacity building and skill development of Public Sector Enterprises.

Brief overview of SCOPE's activities:

SCOPE organised 'National Meet on RTI Act' in Shillong, Meghalaya.
Refer Page No. 89



SCOPE organised workshop on Public Procurement in Shillong, Meghalaya.
Refer Page No. 93

SCOPE and GIZ, Germany organised a workshop on 'Decarbonisation of India's PSEs and the Role of Green Hydrogen'.
Refer Page No. 96 and catch key highlights of select sessions of workshop on Page No. 102



SCOPE signed an MoU with Textiles Committee, Ministry of Textiles and GeM at Bharat Mandapam, New Delhi.
Refer Page No. 92

International Delegation from V. V. Giri National Labour Institute joined SCOPE's Women's Day celebrations.
Refer Page No. 98



200th Meeting of SCOPE Executive Board held.
Refer Page No. 88



Director General's Desk

At the outset I would like to wish our readers a Happy Public Sector Day. Illuminating the pivotal role and incessant contribution of Public Sector Enterprises (PSEs) has been the core prerogative of SCOPE, the apex body of PSEs in India.

Pursuant to this and as part of our Public Sector Day celebrations, SCOPE is bringing to you this special issue of KALEIDOSCOPE on the theme- 'Contribution of PSEs towards Viksit Bharat.' I am happy to share that this issue encapsulates the activities and initiatives undertaken by PSEs across the country and their future vision towards creating a developed nation.

SCOPE as an ever-transcending organization, believes in thinking-out-of-the- box and transcending with the times. As a pioneering effort towards coalescing the Public Sector fraternity, SCOPE has created a state-of-the-art facility in the heart of the city, which is all set to open its doors this Public Sector Day. I seek your blessings as we embark on this propitious journey.

This time SCOPE is also conducting several activities as part of the Public Sector Day celebrations. SCOPE for the first time is organizing 'SCOPE Premier League'- an inter-PSE sports event that will feature Badminton and Table Tennis competitions, an art exhibition, health programs among others. SCOPE is also bringing out a Coffee Table Book, which is a succinct exploration of SCOPE's vision, mission and role as the apex body of PSEs.

As part of its capacity building endeavours, SCOPE has been successfully conducting programs in different regions of the country and the enthusiastic response to our programs held in Shillong, Meghalaya recently is testimony the vivid support of our members in fortifying our endeavours.

Also, taking its Green Skilling endeavour to the next mile, SCOPE in association with GIZ, Germany organized a Workshop on 'Decarbonisation of India's Public Sector Enterprises and the Role of Green Hydrogen.'

We also had the opportunity to host an international delegation from VVG NLI and it offered us a unique opportunity in showcasing the tremendous role that PSEs play in nation building. SCOPE will continue to decipher more such opportunities.

In the upcoming months, SCOPE is looking at taking more concrete steps in the direction of realizing its vision and I am confident that with the guidance of our Executive Board and the support of our members, we will ace newer heights of excellence.

Programmes & Initiatives launched (since last issue of KALEIDOSCOPE)
SCOPE celebrates International Women's Day- 8th March, 2024
Workshop on 'Decarbonisation of India's PSEs and Role of Green Hydrogen' – 12th March, 2024
Programmes & Initiatives in the offing
Public Sector Day- Month long celebrations- 10th April 2024 onwards
Release of Special Issue of KALEIDOSCOPE & SCOPE's Coffee Table Book- 10th April 2024
SCOPE -ILO Skills Study Launch

Atul Sobti
Director General, SCOPE



Viksit Bharat: The Vision of Hon'ble Prime Minister Narendra Modi

"Today, every institution and every individual should move with a resolution that every effort and act will be for Viksit Bharat. The aim of your goals, your resolutions should be only one – Developed India"

*– Hon'ble Prime Minister
Narendra Modi.*

Viksit Bharat, or Developed India, is the vision of Prime Minister Narendra Modi and represents a complete blueprint for the country's prosperity, not just a catchphrase. This vision will be a guiding principle for India during its Amrit Kaal. With a combination of social changes, technical innovations, and economic reforms, Hon'ble Prime Minister hopes to raise India's position at the global level. This vision has many components, from economic growth to all-inclusive development and imbibing technological innovation.

A key objective of Viksit Bharat is to enable every citizen to participate in the economy. The economy that PM Modi

envisions is strong, inclusive, and full of job and entrepreneurial opportunities. This entails implementing policies to encourage investment, advance economic growth, and foster innovation across various industries. The government's dedication to creating an environment favourable for business expansion and employment generation is demonstrated by the focus on programmes such as Made in India, Digital India, and Startup India. With the support of digitisation, homegrown manufacturing, and a thriving startup community, Hon'ble Prime Minister hopes to raise millions out of poverty and realise the nation's full economic potential.

Another crucial component of Viksit Bharat's vision is to develop world-class infrastructure to promote sustainable growth and improve everyone's standard of living. To close infrastructure gaps around the country, the government is launching large-scale projects that range from constructing world-class roads, trains and ports to increasing digital connection and updating urban infrastructure. Projects like the Pradhan Mantri Awas Yojana, Bharatmala, Sagarmala and Smart Cities Mission highlight the government's commitment to building liveable, sustainable cities, enhancing connectivity and offering affordable housing to everybody. Vande Bharat trains, the UDAN initiative, has made

the travel experience hassle-free for common citizens. Similarly, the expansion of metro trains has also ensured a smooth travel experience within cities. Hon'ble PM Modi wants to increase productivity, unleash economic potential, and raise the general standard of living through infrastructure investment.

Viksit Bharat prioritises inclusive development and social welfare to ensure everyone benefits from economic progress. The administration has launched several landmark initiatives to support disadvantaged populations, empower marginalised communities, and expand social security, healthcare and education. Programmes such as Ayushman Bharat, Swachh Bharat Abhiyan, Beti Bachao Beti Padhao and Pradhan Mantri Jan Dhan Yojana indicate the government's dedication to enhancing healthcare, financial inclusion, gender parity, and sanitation. Hon'ble PM Modi wants to build a more inclusive and equal society where all people can prosper, and he accomplishes this by placing greater importance on social welfare. Initiatives such as Jan Aushadhi Kendras were able to save 30,000 crore rupees for individuals from poor and middle-class families by providing medicines at an 80% discount rate. Concerning environmental sustainability, Viksit Bharat aims to make India greener and cleaner. The government has started programmes to encourage renewable energy use, water conservation, and cleanliness, including the Swachh Bharat Abhiyan, Jal Jeevan Mission, and National Solar Mission. On a global level, Hon'ble PM



Modi has endorsed sustainable development principles and the International Solar Alliance. The government aims to reduce environmental problems and create a sustainable future for future generations; thus, it supports conservation initiatives, climate-resilient infrastructure, and renewable energy.

India is dedicated to upholding internationally acknowledged environmental

standards and aims to achieve approximately fifty per cent of its installed electric power capacity from non-fossil fuel sources by 2030.

One of the key pillars of Hon'ble PM Modi's Viksit Bharat rests on harnessing technology to enhance efficiency and transparency in governance.

Through platforms like Aadhaar and Direct Benefit Transfer





(DBT), the government has streamlined the distribution of subsidies and welfare benefits, reduced leakages, and ensured that assistance reaches the intended beneficiaries directly. DBT helped the government eliminate ten crore fraudulent entries and successfully curbed financial leakages.

DBT has saved nearly 3 lakh crore rupees from falling into the wrong hands in the country. Additionally, schemes like Ayushman Bharat have utilised technology to create a digital health infrastructure, enabling citizens easy and hassle-free access to healthcare services.

Overall, the government's emphasis on leveraging technology for welfare purposes underscores its commitment to inclusive development and empowerment of all citizens. Inspired by Hon'ble PM Modi's vision of Viksit Bharat, India is making remarkable progress in every sector.

Whether being the first nation to land on the moon's south pole or poised to become the world's third-largest economy, India is undeniably ascending on the path of development. The increasing cultural revival through programs such as the PRASHAD scheme and the Swadesh Darshan scheme

ensures that Indian culture has garnered widespread popularity on the global stage.

Hon'ble PM Modi's vision of Viksit Bharat is based on an ambitious and groundbreaking plan to achieve India's full potential and propel the country to unprecedented development and prosperity. To establish a more resilient and inclusive society where Janbhagidari is the basis of the nation's success story. In addition, the government focuses on infrastructural development, social welfare, economic empowerment, and environmental sustainability.

(Source: <https://www.narendramodi.in/>)



BPCL – Leading the Change, Serving the Nation



Bharat Petroleum Corporation Limited (BPCL), a Fortune Global 500 company, thrives at the intersection of energy, innovation and sustainability. Bestowed with the coveted distinction of 'Maharatna' status, BPCL is proud to be a part of an elite club of companies having greater operational and financial autonomy.

An Exemplary PSE

With its previous corporate avatar as Burmah-Shell, BPCL has its roots dating back almost a century, and it was morphed into a **Public Sector Enterprise** after the nationalization of Burmah-Shell on January 24, 1976. For BPCL, this was the beginning of a new journey with a brand-new vision for a new India, marked by boundless enthusiasm and eagerness to serve the nation.

A premier diversified energy major, BPCL is a jewel in the crown of **Public Sector Enterprises** in India. The second-largest Oil Marketing Company (PSU OMC) in the nation, BPCL is a giant in the Oil & Gas sector, with a commanding presence across the entire hydrocarbon value chain spanning across upstream to downstream sectors of the oil and gas industry. Beyond refining of crude oil

and marketing of petroleum products, BPCL has diversified into petrochemicals, natural gas distribution, cleaner alternative fuels, biofuels, renewable energy, and Oil & Gas exploration in India and overseas.

Huge Infrastructure, Vast Nationwide Network

BPCL has three state-of-the-art petroleum refineries at Mumbai, Kochi and Bina, with a combined refining capacity of 35.3 MMTPA. Apart from this, the company has a humongous nationwide infrastructure of more than 21,000 fuel stations, 6200+ LPG distributorships, 525 lubricant distributorships, 123 storage locations, 70 aviation service stations, 53 LPG bottling plants, four lubes blending plants, and a sprawling network of 3,537 km cross-country pipelines for crude oil and product transportation.

Eight Pillars of Growth

BPCL is built on eight pivotal pillars clubbed under two main themes: 'Nurturing the Core' and 'Future Big Bets'. 'Nurturing the Core' has three foundational pillars, viz., Petroleum Refining, Fuel Marketing and Upstream (Exploration and Production). 'Future Big Bets' is anchored on five key areas, viz., Natural

Gas, Non-fuel Retailing, Petrochemicals, Green Energy Businesses, and Digital Ventures.

Mission 'Viksit Bharat @2047'

Energy is the chief driver of economic growth and higher living standards, and as a major catalyst energizing the economic growth of the nation, BPCL serves millions of people and businesses every day. Looking forward, BPCL is charting an ambitious trajectory towards Atmanirbhar and prosperous Bharat.

India is fast approaching two major economic milestones – of becoming a 5 trillion-dollar economy and the third largest economy in the world from its current fifth position very soon. Further, guided by the visionary resolve of the Hon'ble Prime Minister Shri Narendra Modi, the nation aspires to become a fully developed nation by 2047 – the centennial year of India's independence.

BPCL is solemnly aligned with this profound national goal and in this mega pursuit, the company has unveiled big-ticket strategic investments to increase its infrastructure for advancing the nation towards becoming a regional and global

hub in petroleum refining and petrochemicals. In line with this objective, BPCL has unfolded ambitious investment plans totaling ₹1.5 lakh crore over the next five years. In addition to this, BPCL has also unveiled a progressive investment outlay amounting to 1 lakh crore till 2040 for energy transition.

Like BPCL's Kochi Refinery with an integrated Petrochemical complex, its Bina Refinery has launched refinery expansion along with an integrated Petrochemical Complex project involving an investment of ₹49,000 crore, which is a historic milestone as the largest single investment in BPCL's history. As a part of the project, the capacity of Bina Refinery is being enhanced from the present 7.8 MMTPA to 11 MMTPA along with setting up of an Ethylene Cracker and downstream petrochemical units to produce niche petrochemicals that would spawn myriads of industries, fostering economic growth. The project will generate more than 1 lakh direct and in direct employment and the nation will save forex of ₹20,000 crore annually through import substitution.

Energy Transition: Net-Zero by 2040

BPCL is walking the path of energy transition to achieve net-zero in Scope 1 and Scope 2 emissions by the year 2040. For sustainable development, the company is aligned with the Sustainable Development Goals (SDGs) and is prioritizing clean, planet-friendly energy for an environmentally sustainable and economically prosperous future, for which it has adopted

a multi-pronged approach as follows.

Biofuels

BPCL aims to expand its renewable portfolio to 1 GW by 2025 and 10 GW by 2040. The company's 2G bio-refinery at Bargarh is slated to produce 100 kilolitres per day of 1G ethanol and a similar volume of 2G ethanol from agricultural waste.

Ethanol-blended Petrol

BPCL is the industry coordinator for the government-mandated Ethanol-blended Petrol (EBP) program, and the company has achieved ethanol blending of 10% and is gearing up for the target of 20% blending by 2025-26. Blending locally produced ethanol with petrol helps India strengthen its energy security, reduce imports, enable local enterprises and farmers to participate in the energy economy.

Compressed Biogas

BPCL is promoting Compressed Biogas (CBG) through the SATAT (Sustainable Alternative Towards Affordable Transportation) initiative of the Ministry of Petroleum & Natural Gas. As of March-end 2023, BPCL has issued more than 300 Letters of Intent under the scheme, for a total estimated production capacity of about 5 lakh tonnes per annum of CBG, utilizing bio-mass waste.

Natural Gas

BPCL is also expanding the use of natural gas as a cleaner fuel for domestic and industrial use, and as feedstock for industries. The company is a major player

in City Gas Distribution (CGD) and is enlarging its CGD network across the nation. BPCL has acquired 50 GAs along with its JV partners, promoting the vision of the Government to take the share of the natural gas in the nation's economy from 6% to 15%.

E-Mobility

To facilitate faster adoption of electric vehicle (EV), BPCL is setting up EV charging facilities at 7,000 energy stations in the next five years. Also, several highways have been equipped with BPCL's Rapid Charging EV Corridors.

Hydrogen – An Exciting Future

BPCL has innovated the nation's first Alkaline Electrolyser for green hydrogen generation, which BPCL has developed indigenously in collaboration with Bhabha Atomic Research Centre (BARC). The indigenous electrolyser, costing 30% less than an equivalent imported one, generates "green hydrogen" by using renewable energy for electrochemical splitting of hydrogen from water. This game-changing innovation is a perfect fit for the National Green Hydrogen Mission and represents a huge leap in Atmanirbharta for the nation.

BPCL has also developed a Green Hydrogen pilot plant at its Bina Refinery, which will replace grey hydrogen used in the refinery, thus slashing down carbon emissions.

Innovation through Research & Development

BPCL's Corporate Research & Development Centre (CRDC) is

recognized by the Department of Scientific and Industrial Research. CRDC has innovated numerous industry-leading solutions by developing cutting-edge technologies as well as innovative products and processes, to increase company's profitability and reduce the environmental footprint. This relentless quest for excellence has yielded a large portfolio of patents. BPCL's Product & Application Development Centre (P&AD) is engaged in developing high-performance automotive, industrial, and green lubricant formulations.

Recently, CRDC has developed Bharat Hi-Star LPG and PNG stoves with an efficiency of approximately 75%, a Superabsorbent Polymer (SAP) for agricultural applications, smokeless kerosene for the Indian Army, niche petrochemical catalysts and ligands, biodegradable films made from 1G ethanol by-products, green silica from 2G ethanol by-products as well as numerous advances in carbon capture and utilization to produce value-added petrochemicals such as methanol and formic acid. India's first alkaline electrolyser for green hydrogen generation in collaboration with BARC reinforces BPCL as a top-notch innovator, leading the way in energy transition.

New Initiatives

The original PFS initiative of BPCL has long been hailed as a hallmark of Quality & Quantity assurance for automotive fuels dispensed at BPCL's PFS-certified fueling stations. In a refreshing move, BPCL has extended its

digitally enabled 'NextGen Pure for Sure' fueling initiative to fueling stations in a large number of selected cities.

The company has elevated trust, convenience and customer experience through the pre-paid "UFill" initiative that helps patrons to save time and have total control over the fueling of their vehicle.

The company has unveiled "Silent Voices" – an initiative to empower specially-abled youths with socio-economic independence by employing them at BPCL's fueling stations in select cities.

During the year, BPCL's MAK Lubes and Bharatgas scaled up the verification process for product packs by employing special QR-code based temper-proof seals for establishing authenticity and ensuring safety.

To tap the fast-growing rural markets, BPCL has begun consumer retailing in rural India by establishing 'In & Out' stores run by rural women called "Urja Devis," who are provided the necessary support and inputs to become village-level entrepreneurs.

Corporate Governance

Alongside the pursuit of commercial objectives, upholding strong governance remains of utmost importance to BPCL for ensuring long-term sustainability. The company has resolutely established and enhanced robust frameworks, structures, protocols, and oversight mechanisms, which collectively serve to safeguard the interests of stakeholders by prioritizing transparency, comprehensive

disclosure, adherence to regulations, fostering employee empowerment, collective decision-making, and social initiatives.

The independent Internal Audit function undertakes regular evaluations of our business processes and controls. Their insights and findings are consistently shared with the Audit Committee and the Board. Complementing these efforts is the Vigilance function, complemented by a Whistle Blower Policy, which serves as a cornerstone for transparency across all facets of our operations, facilitating a culture of openness and accountability.

Skill Development for the Youth

BPCL shapes the future of underprivileged youth by giving them an opportunity to learn and upgrade their technical skills to move up in their professional life. BPCL's Skill Development Institute (SDI) offers vocational courses such as Fitter Fabrication, Process Instrumentation, Industrial Welding (Oil & Gas), and Industrial Electrician (Oil & Gas).

Similarly, many rural women are being empowered by promoting self-sufficiency as a crucial lever of socio-economic change. BPCL also offers a ray of hope to people with special needs by bringing them aboard the mainstream of the society. BPCL is also championing a brighter future for leprosy-affected youth with a placement-linked vocational training program, helping them become proud and active member of the society.

A Community Citizen

BPCL's commitment towards society is its other side of the coin. The company strives consistently to make impact in the core thrust area of health and hygiene, education, skill development, water conservation and community development. BPCL has been an enthusiastic participant in several nationwide initiatives like the Transformation of Aspirational Districts Program and the Swachh Bharat Mission.

In the year 2022-23, BPCL undertook various initiatives in line with Sustainable Development Goals (SDGs) and national priorities of 'Health & Nutrition' under the thematic area advised by Department of Public Enterprises (DPE). BPCL is promoting preventive care

through cancer screening by partnering with the Indian Cancer Society in 'Preventive' as well as 'Curative' initiatives in the areas of oral, cervical and breast cancer, while also providing free-of-cost quality cancer treatment to the underprivileged population at 10 Government/charitable hospitals. BPCL has supported ultra-modern surgical equipment for operation theatres and enabled totally free-of-cost child heart surgeries for needy children with congenital heart disease. Overall, BPCL has enabled 9,000 pediatric cardiac surgeries. BPCL also runs fully functional hospitals at its Kochi and Bina refineries.

The company has also supported the reconstruction of Kedarnath and Badrinath towns and surrounding areas in Uttarakhand, and upgraded toilet

facilities at 75 of the company's retail outlets en route to iconic tourist places in a refreshing initiative called "DriveFresh."

Project BOOND, BPCL's extensive water conservation program for villages and digital education programs for underprivileged young students are among several other deeply impactful community initiatives.

Purpose-driven

As BPCL steps up growth along with sustainability, the company remains steadfast in its commitment to driving long-term value for its stakeholders, while contributing to the nation's development and sharing its lofty aspirations, standing true to the company's core purpose of "Energises Lives" and serving the nation with all its might. ■

GAIL shaping India's energy landscape for a sustainable future aligned with Viksit Bharat Goals



With the glorified past and determined focus, GAIL has played a vital role as country's major energy player, supporting economic growth, while ensuring energy security, coupled with exploring new regions with innovative concepts and vision of a sustainable gas-based economy for the nation. This year marks 40 years of GAIL's sustainable journey as country's leading Maharatna company towards ensuring energy justice and a clean energy access across the nation.

From its humble beginning as a gas transmission company, GAIL has blossomed to become the flagship natural gas company of India. Today, GAIL is the largest integrated Natural Gas Marketing & Transmission Company in India having its presence along entire natural gas value chain comprising of gas transmission & marketing, LPG transmission, gas processing, petrochemical, LNG imports/terminalling, Exploration & Production and city gas distribution. GAIL has also diversified into renewable energy business.

GAIL has remained committed towards mission of accelerating and optimizing the effective and economic use of Natural Gas and its fractions for the benefit of the

national economy. Aligning with Govt. priorities, to support the development of the gas market, GAIL is continuously working towards the completion of the National Gas Grid (NGG). In relentless pursuit to complete the NGG, GAIL take pride in currently owning and operating around 16,080 Kms (65%) length of pan-India natural gas pipeline network in 24 states and UTs. GAIL is steadfastly working towards laying around 3400 km of natural gas pipelines currently across the nation. The major ones include Durgapur Haldia Pipeline, Dhamra Haldia Pipeline, Srikakulam Angul Pipeline, Mumbai Nagpur Jhasuguda, Krishnagiri Coimbatore Section of KKBMP and Gurdaspur Jammu Pipeline. In addition, GAIL owns and operates 2,038 Kms length of LPG pipeline with the capacity to transport 4.5 MMTPA of LPG.

GAIL has proudly established India's first small-scale LNG unit at Vijaipur, showcasing the potential of SSLNG technology in connecting isolated sources and consumers.

GAIL is the leading gas marketing company in India which sells more than 50% of natural gas and 60% of LNG sold in the country. GAIL supplies gas to major consumers such as power

and fertiliser industries as well as refinery, petrochemical plants, steel plants, city gas / CNG and small industries.

To cater to the needs to energy security of the nation over the years since 2012 GAIL has developed strong experience and expertise in Liquefied Natural Gas (LNG) business. GAIL is among the top 10 LNG portfolio player in the world with a portfolio size of over 14 MTPA with geographic supply diversity besides varied price indices. GAIL has pioneered in shipping as well and have recently successfully onboarded and chartered the long-term LNG vessel, GAIL Urja, adding to GAIL's fleet of now four long-term LNG vessels. Petronet LNG (a JV of GAIL) operates two LNG regasification terminals at Dahej & Kochi. GAIL is also the promoter of Konkan LNG Private Limited which operates LNG regasification terminal at Dhabol with design capacity of 5 MMTPA.

GAIL has overseas presence in USA, Singapore, Myanmar, China, Egypt and Russia. GAIL's wholly owned subsidiary in Singapore namely GAIL Global (Singapore) Pte. Ltd. (GG SPL) was established for global LNG trading. GAIL has participating interest in 13 blocks (India, Myanmar and

Eagle Ford Basin-USA). GAIL has equity partnership in South East Asia Gas Pipeline Company (SEAGP) which is transporting gas from Myanmar to China. GAIL has made investments in three companies in downstream business at Egypt and China.

GAIL has a strong focus in city gas distribution (CGD) business and GAIL along its JVs is now the largest CGD operator in India. GAIL group companies are authorised in 72 GAs across the nation out of the total 308 GAs. We cater to communities across the country summing up to the mammoth number of approximately 82 lakh PNG customers (65 %) and 2600+ CNG stations (40%) of country's share.

GAIL is the leading petrochemical player in India with a polymer portfolio of over 1 million tonnes. GAIL owns and operates a gas based petrochemical complex at Pata in Uttar Pradesh with a capacity to produce 810,000 tonnes per annum of polymers. GAIL through its subsidiary, Brahmaputra Cracker and Polymer Limited, owns and operates a petrochemical complex at Lepetkata in Dibrugarh, Assam with polymer capacity of 280,000 tonnes per annum. GAIL is also a co-promoter in ONGC Petro-additions Limited (OPaL) which operates petrochemical complex of 1.4 million tonnes per annum polymer capacity at Dahej in Gujarat. To further enhance market share in petrochemical business, GAIL is currently constructing two petrochemical projects – One 60 KTA PP plant in Pata (UP) and another 500 KTA PDHPP plant in Usar (MH), which would be the first plant in India using Propane Dehydrogenation

technology for the production of Propylene. Apart from these, GAIL has 5 gas processing plants with the capacity to produce 1.4 MMTPA of LPG and value-added products such as propane, pentane and naphtha. Also, a 50 KTA Iso Propyl Alcohol (IPA) project has been approved for setting up at Usar. Additionally, GAIL successfully acquired 1.25 MMTPA Purified Terephthalic Acid plant JBF Petrochemical Ltd. (renamed as GAIL Mangalore Petrochemicals Ltd.) for further diversification in speciality chemicals segment.

Ministry of Petroleum & Natural Gas has launched Sustainable Alternative towards Affordable Transportation (SATAT) programme for promoting Compressed Bio Gas (CBG) by enabling entrepreneurs in setting up of 5,000 CBG plants to target production of 15 MMTPA of CBG and 50 MMTPA of bio-manure in India by 2025 so that 2/3rd of LNG import can be reduced. GAIL has issued 403 LOI's till Mar 2024. GAIL is setting up CBG plants at different locations in various modes. MoP&NG has granted approval for supply of Biogas/CBG co-mingled with domestic gas to all CGD entities at Uniform Base Price (UBP) for use in CNG (T) and PNG (D) segments of CGD networks. GAIL has been assigned to operationalize the CBG-CGD Synchronization Scheme for CBG produced by plants in CGD networks. The Cumulative Biogas/CBG sale under Synchronization scheme is ~11000 TPA for FY 2023-24.

In the next few years, India is projected to become the third-largest economy in the world, with a GDP of \$5 trillion.

Over the past decade, India has made significant steps in reducing energy consumption by embracing clean technologies and sustainable energy sources. Govt of India is synchronising policies and implementation of strategic initiatives across upstream, midstream and downstream sectors of the natural gas value chain to enhance energy security in India with respect to emerging scenarios. GAIL strives to fulfil the country's ambition of Viksit Bharat, the current government's roadmap to making India a completely developed nation by 2047.

GAIL has renewable portfolio of ~132 MW including ~118 MW of Wind and ~14 MW of Solar energy. GAIL is further intensifying its efforts to bolster in RE foray and exploring to set up mega RE power project in near future. This includes developing captive RE power projects and enhancing in-house competencies to meet GAIL's internal consumption targets.

To support the GOI initiative in "National Green Hydrogen Mission" for promotion of usage of green hydrogen, GAIL started India's maiden Hydrogen blended natural gas supply to the city gas network of Avantika Gas Ltd in Indore (M.P.), one of GAIL's joint venture. Further, GAIL's Green Hydrogen Plant based on PEM water electrolyser in Guna, Madhya Pradesh will be commissioned shortly. On commissioning, this plant shall produce nearly 4.3 metric tons of green hydrogen per day and will be the largest such plant in the country.

In line with India's vision to achieve Net Zero by 2070 adopting

the "Panchanmrit" and the concept of the mass movement for "LiFE", GAIL aspires to achieve Net-Zero ambition of 100% reduction in Scope 1 and Scope 2 emissions and a 35% reduction in Scope 3 emissions by 2040.

Several initiatives like VIM (Vender Invoice Management) portal for online verification & processing of payment to vendors, Waiver of Bank Guarantee submission for MSME vendors, "Samadhan" Mechanism (for easy dispute resolution, Health Monitoring & Quarterly Closure of Contract etc), implementing supportive & conducive environment for partnership & business has been recently implemented by GAIL

in order to improve ease in doing business. Different initiatives under GAIL CSR activity includes Unnati for Rural Development, Saksham for care of elderly and differently abled persons, Arogya for health enhancement, Harit for Green Environment, Kaushal for Skill Development, Ujjwal for Education and Sashakt for Woman Empowerment etc. All these flagship CSR initiatives strives to enhance value creation in the society/community in which it operates, through its services, conduct and initiatives to promote sustained growth for the society and community with environmental concern.

GAIL being a leading Maharatna company, aspires to be at the

forefront in the execution of GoI's vision and has been diligently striving for it.

Over its journey of four decades, GAIL has strived to maintain strong relationship with customers, vendors, partners, communities and Regulators along with proactive engagement with other stake holders, Central and State Governments. Reducing pollution & better environment.

GAIL intends to keep the current momentum in infrastructure creation, diversification, expansion, renewables, LNG & natural gas penetration and bigger role in energy transition and to enhance it to the benefit of the nation at large. ■

HPCL: Fueling the Journey Towards a Developed India (Viksit Bharat)



Hindustan Petroleum Corporation Limited (HPCL), a leading Indian oil and gas company, plays a pivotal role in propelling India's journey towards a developed nation, envisioned as "Viksit Bharat." HPCL's contributions extend beyond simply supplying fuel; they encompass economic development, social welfare, and environmental sustainability, all crucial pillars of a thriving nation.

Economic Engine:

HPCL acts as a vital cog in India's economic machinery. During April-Dec'23, HPCL recorded the highest ever Nine-Month Standalone PAT of ₹ 11,851 crore. The company's extensive network of refineries, pipelines, and retail outlets ensures the uninterrupted supply of essential fuels like petrol, diesel, LPG, and aviation fuel. HPCL achieved the highest-ever sales volume of 43.45 MMT and processed 19.09 million tonnes of crude during 2022-23 with 107% of refinery capacity utilization and achieved the highest-ever pipeline throughput of 23.25 MMT during the year. HPCL enjoys approximately 20.18% market share in India and has a strong presence in Refining and marketing petroleum products in the country. This reliable energy supply fuels key sectors like transportation, agriculture, and industry, fostering economic growth and job creation. Additionally, HPCL's infrastructure projects attract investments and stimulate regional development.

Social Welfare Initiatives:

HPCL goes beyond business to actively contribute to social development. The company's corporate social responsibility (CSR) initiatives focus on areas like education, healthcare, skill development, and sanitation. HPCL partners with NGOs and local communities to build schools, hospitals, and skill development centers, empowering individuals and bridging social inequalities. These initiatives have enhanced around 44 lakh lives by improving upon the quality of life for underprivileged communities, fostering a more inclusive and equitable society. During FY 22-23, HPCL has spent Rs. 154.85 Cr through its various CSR initiatives.

Environmental Stewardship:

Recognizing the importance of environmental sustainability for a developed India, HPCL champions green practices. The company invests in cleaner technologies for refining and transportation, aiming to reduce emissions and minimize environmental impact. HPCL promotes the adoption of cleaner fuels like biofuels and CNG, paving the way for a more sustainable future. Additionally, HPCL's efforts in afforestation and waste management contribute to environmental conservation.

Innovation and Self-Reliance:

HPCL recognizes the importance

of self-reliance for a truly developed nation. The company actively invests in research and development (R&D) to explore alternative energy sources and improve fuel efficiency. With more than 200 patent grants and 500 patents filed, HPCL is among the key players in the field of energy research and development. This focus on innovation fosters technological advancements and reduces dependence on imported fuels, strengthening India's energy security.

Empowering a Nation:

HPCL's commitment to "Viksit Bharat" is evident in its diverse workforce representing the rich tapestry of India. The company promotes equal opportunities and invests in employee training and development, creating a skilled and empowered workforce. This focus on human capital fuels national progress and innovation.

Conclusion:

HPCL's multifaceted approach, encompassing economic growth, social welfare, environmental responsibility, and self-reliance, positions it as a key driver of India's development aspirations. By integrating sustainability practices and fostering innovation, HPCL paves the way for a brighter future for a developed India. The company's commitment to "Viksit Bharat" ensures that its success is intertwined with the nation's progress, creating a mutually beneficial and prosperous future. ■

IndianOil: Energising India's Viksit Bharat @ 2047 Ambition



The expected significant escalation in India's economic growth trajectory is projected to more than double the nation's primary energy demand by 2047. IndianOil, positioning itself as the primary energy facilitator of the nation, aims to increase its contribution to the energy sector from 9% to 12.5% by 2050.

Its goal is not only to maintain its status as 'The Energy of India' but also to play a substantial role in realizing India's vision of becoming a "Viksit Bharat @2047".

Viksit Bharat@2047 embodies the ambitious vision of the Government of India to transform the nation into a developed entity by the centenary of its independence in 2047. This vision encompasses various aspects of development, including economic prosperity, social advancement, environmental sustainability, and effective governance. The role of energy remains pivotal for a country of such magnitude in shaping its future trajectory.

IndianOil-The Energy of India

IndianOil, India's national oil company and a leading energy conglomerate, has over a century of expertise in petroleum refining, boasting an impressive

total refining capacity of 80.55 MMTPA.

With an extensive pipeline network spanning over 19,700 km for crude oil, petroleum products, and gas, IndianOil is equipped with robust research and development capabilities across its operations. With an assiduous workforce and a robust network of more than 60000 touch-points IndianOil connects to every Indian across the perimeter of the nation.

IndianOil's achievements include consistent top rankings, such as being the leading Indian Energy PSU in the Fortune Global 500 for 28 years and securing high positions in sustainability indices).

In 2023, it was ranked as the top Indian company (ranked 23rd) in the Transition Score ranking by BloombergNEF and earned the title of India's #1 Oil & Gas Company in the S&P Dow Jones Sustainability Indices 2023.

Looking ahead to India's goal of becoming a "Viksit Bharat @2047," IndianOil is evolving to meet the country's increasing energy demands by focusing on organic and inorganic growth strategies, including capacity expansion and mergers and acquisitions, to maintain and solidify its position as the country's largest energy provider.

Aspiration For An Expanded Role In Viksit Bharat

Positioning itself as the primary energy facilitator of the nation, IndianOil aims to increase its contribution to the energy sector from 9% to 12.5% by 2050.

IndianOil's focus will continue fortifying its core operations to ensure that nation's growing energy demand is met in an orderly manner-

IndianOil's impactful implementation of the Pradhan Mantri Ujjwala Yojana (PMUY) underscore its dedication to delivering clean and affordable energy.

To address India's growing socio-economic and energy needs, the company is investing over Rs. 1 Lakh Crore (12 billion USD) in strategic brownfield capacity expansions, aiming to elevate its refining capacity to nearly 107 MMTPA in the near future.

IndianOil actively engages in exploration and production ventures domestically and internationally to meet growing oil demand. IndianOil has set an ambitious target to triple the current production level to at least 11 MMTPA by the end of this decade. The mission is relentless,

reflecting the company's commitment to future growth and energy self-sufficiency.

IndianOil is committed to enhancing resilience through value addition and thrust on Atmanirbharta through forward integration into Petrochemicals-

IndianOil is investing Rs. 61,077 crore for the construction of a petrochemical complex in Paradip, Odisha, to bolster India's self-reliance in this sector. IndianOil aims for Petrochemical Intensity Index (PII) over 23% by 2040 from current level of 5.9%. Under its petrochemicals business, IndianOil is expanding its operations to include bulk petrochemicals, specialty chemicals, post-consumer plastics recycling, industrial/intermediate chemicals, and biopolymers.

IndianOil is actively partnering in Government of India's vision of doubling the share of Natural Gas in the Energy Mix-

'Gas-based economy' through initiatives like city gas distribution networks and renewable energy sources such as biogas. It aims to increase its gas business by 3-4 times by 2030 from its 2022 level, with a focus on City Gas Distribution network, small-scale LNG units, LNG bunkering, and LNG transportation by road.

IndianOil is investing in many emerging low carbon energy areas-

IndianOil sets ambitious targets

for renewable energy, aiming for a portfolio of 31 GW by 2030 and 200 GW by 2050, alongside producing 4 MMT of biofuels, including Biogas, by 2030 and 7 MMT of biofuels and 9 MMT of Biogas by 2050.

The corporation plans to revamp its retail outlets into Energy Stations, offering comprehensive energy solutions along national highways and green expressways.

Actively leading India's Compressed BioGas (CBG) initiative through the SATAT program, IndianOil plans to establish 30 CBG plants nationwide.

Additionally, it has inaugurated Asia's first 2G Ethanol Plant based on Paddy straw feedstock at Panipat with a capacity of 3 crore litres per annum, aimed at reducing approximately 3 lakh tonnes of GHG emissions annually.

Moreover, IndianOil has set up the world's first Refinery off gas to ethanol (3G ethanol) plant with a capacity of 4.2 crore litres per annum at Panipat, leading to a mitigation of approximately 1.8 lakh tonnes of GHG emissions per annum.

In forward-thinking endeavors, IndianOil collaborates with Praj Industries Ltd. for Sustainable Aviation Fuel (SAF) and biofuels and works with Snam, Italy, to repurpose gas pipelines for hydrogen transport.

Additionally, the introduction of hydrogen fuel cell buses within 25 months of the announcement of the National Hydrogen Mission demonstrates IndianOil's commitment to cutting-edge clean energy technologies.

IndianOil aims to broaden its product portfolio through research and development efforts -

In the realm of research and development, IndianOil is at the forefront of innovation, pursuing a dual strategy of import substitution through the development of catalysts, chemicals, and specialty products, while also advancing decarbonization techniques such as Enzymatic CO₂ Capture, Bio-assisted in-situ crop stubble management, and Valorization to e-fuels. Moreover, the company aims to monetize its expertise by commercializing indigenous processes and products, promoting Fermented Organic Manure (FOM) as an alternative to inorganic fertilizers, developing lubricants for new generation mobility and expanding sales in emerging markets.

As a remarkable achievement, IndianOil became the first Company in India to produce and market AVGAS 100 LL, a specialised aviation fuel for two-stroke piston engines, used by pilot training schools and army establishments. The company has shipped this product to countries like Papua New Guinea, Indonesia and Sri Lanka positioning India as an exporter of this niche fuel, from being an importer.

IndianOil has further solidified its position in the global market by introducing Reference Gasoline (E-10 & E-20) and Diesel Fuels (B-7), making it one of only three companies worldwide producing this reference fuel. Additionally, the corporation recently unveiled FIM Compliant Cat 2 Fuel

“STORM” for the Asian Road Racing Championship. With these new offerings, IndianOil is positioning itself as a 'Future Ready' corporation, poised to meet the evolving needs of the country.

IndianOil's Environmental Stewardship for India Net Zero Journey-

Leading the charge in the energy transition, IndianOil is steadfastly committed to achieving Net-zero emissions in Scope 1 and Scope 2 by 2046. Comprehensive action plans have been devised to realize this ambitious goal, guiding India's transition towards green energy through diverse avenues. The corporation has envisaged that an investment of over Rs. 2 lakh crores will be required to achieve the target by the year 2046.

IndianOil has taken initiatives which it plans to scale up through partnerships and R&D to develop low carbon technologies like green hydrogen, e-fuels, SAF, CCUS, alternate energy, EV battery and start-up tech solutions. IndianOil has been taking significant strides to strengthen the hydrogen ecosystem. The corporation is developing a 10 KTA green hydrogen capacity at Panipat Refinery and aims to meet 50% of hydrogen needs of its refineries through Green Hydrogen by 2030.

Through strategic alliances and collaborative ventures, IndianOil has positioned itself as a driving force for collective welfare and sustainable progress. The company collaborates with industry leaders to bolster India's commitment to green

energy initiatives. By partnering with industry majors such as NTPC Green Energy Limited, SJVN Limited, Praj Industries, LanzaJet, L&T, and Renew, among others, IndianOil plans to promote renewable energy including biofuels production, green hydrogen ecosystem, Sustainable Aviation Fuel, and to promote battery swapping and e-mobility solutions.

IndianOil is pushing plastic recycling, such as conversion of waste plastic into fuel. Moreover, IndianOil is developing a supporting infrastructure for recycling of plastic waste. A new brand of polymer recyclates - Cycloplast has been introduced. IndianOil also undertook the UNBOTTLED initiative – a brand of sustainable garments launched for merchandise made from recycled polyester. The 'Unbottled' campaign aims to convert 100 million PET bottles annually into uniforms for our on-ground teams and non-combat uniforms for our armed forces and other stakeholders.

Promoting Start-Up Eco System

IndianOil has initiated the promotion of an innovation ecosystem by offering financial and intellectual support to startups in the hydrocarbon domain through the IndianOil Start-Up Scheme. This pan-India initiative aims to foster innovative technology and business process re-engineering ideas with substantial business potential, extending its scope to initiatives beyond the hydrocarbon sector that can bring holistic benefits to society with profound societal and environmental benefits.

To date, 36 startups have received funding under the scheme, amounting to a total disbursement of Rs 42 crore. This funding encompasses various areas of social and ecological sustainability also, extending beyond traditional hydrocarbon-related investments. As the country embraces a culture of startups and entrepreneurship, the corporation is embracing a new role in startup funding.

Making a Difference: Beyond Business

IndianOil's Beyond Business Initiatives transcend conventional corporate boundaries, contributing to the holistic advancement of society.

Actively engaged in promoting sports and nurturing talent, IndianOil supports over 100 active players and 230 scholarship players through initiatives like the Acers program and the Shakti initiative in Athletics.

Through the IndianOil Vidushi program, specialized coaching and mentoring are provided to underprivileged girls after class XII, covering all expenses to prepare them for engineering entrance exams.

Aligned with IndianOil's commitment to community well-being, initiatives like 'IndianOil Aarogyam' extend healthcare accessibility to marginalized populations.

In the pursuit of Comprehensive Cancer Care, IndianOil partners with organizations like the Assam Cancer Care Foundation to support cancer treatment centers and addresses cleft deformities through collaborations with Mission Smile.

Innovative programs like 'Parivartan – Prison to Pride' and 'Nai Disha – Smile for Juvenile' provide sports training to prison inmates and children in correction homes, impacting the lives of approximately 5,000 inmates across 105 facilities.

In significant conservation efforts, IndianOil funds projects such as the reintroduction of cheetahs to India and contributes to the conservation of the Indian single-horned rhino. Additionally, the company undertakes various ecosystem and species conservation projects, including

the protection of Olive Ridley turtles and safeguarding tiger habitats in the Sunderbans.

IndianOil: Realising 'Viksit Bharat @2047'

IndianOil's business development initiatives continue to be driven by emerging opportunities and guided by country's vision of becoming 'Viksit Bharat @2047' when the country celebrates its 100th year of independence. The Corporation's business strategies focus primarily on expansion across the hydrocarbon value chain and Renewables, both

within and outside the country at the same time meeting our Net Zero target. The corporation takes up a proactive role in identifying opportunities for growth and innovation, seeking ways to meet the burgeoning energy needs of the country most efficiently, in the process maximizing financial returns while minimizing environmental impact. IndianOil is committed to delivering sustainable growth that benefits all, shaping a brighter future for generations to come and help achieve a Viksit Bharat by time we celebrate our 100th year of independence. ■

ONGC



ONGC has played a pivotal role in shaping India's energy landscape, leaving an enduring impact on the nation's hydrocarbon industry. Since its establishment in 1956, ONGC has undergone continuous evolution, emerging as a global energy player dedicated to sustainability and responsible practices.

The journey of ONGC commenced with the significant discovery of oil in Gujarat's Ankleshwar field, marking India's entry into the domain of oil and gas exploration and production. The company's pioneering efforts led to the discovery of major fields, including the iconic Mumbai High, symbolizing technological excellence in the sector and significantly contributing to India's energy self-reliance.

In response to the changing energy landscape, ONGC has placed a strong emphasis on environmental stewardship, launching initiatives aimed at mitigating the environmental

impact of its operations. This commitment has laid the groundwork for a sustainable and responsible approach.

Today, ONGC transcends its role as a stand-alone exploration and production company to become a beacon of sustainability within the energy sector, aligning with Environmental, Social, and Governance (ESG) principles. With an ambitious target of achieving Net Zero Emissions (Scope-I and Scope-II) by 2038, ONGC has already reduced emissions by 20.7% since 2016 through comprehensive strategies involving renewable energy sources, minimized gas flaring, and energy-efficient practices.

ONGC's commitment extends globally through collaborations in Carbon Capture, Utilization, and Storage (CCUS), highlighting its dedication to addressing climate change on a global scale. The company envisions a future characterized by sustainability,

innovation, and leadership in renewable energy. Plans to invest Rs. 1 lakh crore in Green Initiatives by 2030 underscore ONGC's determination to develop 10 GW of renewable capacity, explore offshore wind energy, and engage in green ammonia production. The year 2023 marked a transformative period for ONGC, evidenced by substantial growth in its stock price, reflecting a 37% absolute return. Its subsidiary, ONGC Videsh Limited, demonstrated stellar performance with a 32% increase in oil production, earning Navaratna status. Initiatives such as establishing OVL Overseas IFSC Ltd. in Gift City underscore ONGC's commitment to robust financial and operational performance.

As ONGC looks forward to 2024, it positions itself as a leader in India's journey towards decarbonization, particularly in the oil and gas sector. The company aims to achieve





zero flaring and zero methane emissions by 2030, with Scope I and Scope II Net Zero targeted for 2038. The strategic shift towards sustainable sources such as renewables, green hydrogen, and green ammonia reflects a concrete plan for a greener future.

ONGC's commitment to corporate governance is evident in initiatives such as centralizing procurement, establishing the Material Management Intelligence and Design group (MIND), and streamlining core processes. Talent management and leadership selection undergo rigorous assessments, emphasizing Integrity, Delivery, and Commitment.

The company recognizes the potential of its senior workforce and the energy of its younger members, emphasizing collective decision-making as key to success, combining wisdom with enthusiasm for achieving growth and contributing significantly to India's pursuit of cleaner energy.

ONGC's achievements are recognized globally, with prestigious rankings in the S&P Global Commodity Insights Top 250 Global Energy Company

Rankings 2022, Fortune Global 500 List 2023, and Forbes' Global 2000 List. It has also been consistently recognized as one of India's best employers, earning certifications such as the Great Place to Work and featuring in various industry-specific awards.

In various sectors, including finance, risk management, environment, and social responsibility, ONGC has received numerous accolades, showcasing its multifaceted contributions to nation-building. These include awards for financial excellence, risk management, innovation, and outstanding leadership, demonstrating ONGC's commitment to excellence across diverse domains.

ONGC's journey is characterized by continuous innovation, responsible practices, and a resolute vision for a sustainable and greener future, making it a standout player in India's energy sector and a formidable global force.

On 6 February 2024, India reached a momentous milestone in its maritime safety infrastructure as Prime Minister Narendra Modi inaugurated the Sea

Survival Centre at the ONGC Advanced Training Institute in Goa. This groundbreaking institution, named the ONGC Sea Survival Centre, stands as a beacon of excellence dedicated to advancing India's sea survival training ecosystem to align with global standards. The establishment of the ONGC Sea Survival Centre underscores the Energy Maharatna's unwavering dedication to prioritizing safety and operational excellence. By setting new benchmarks in sea survival training, ONGC reaffirms its leadership in the energy sector, committed to upholding the highest standards of safety and operational integrity. Prime Minister Modi's presence at the inauguration ceremony underscores the Centre's pivotal role in enhancing India's position in the sea survival training ecosystem and its capacity to provide rigorous emergency response training, ensuring timely rescue operations in critical situations.

As India moves forward towards global maritime leadership, the inauguration of the Integrated Sea Survival Centre signifies the nation's resolve to safeguard the



lives and security of its maritime workforce. Equipped with state-of-the-art infrastructure and a steadfast commitment to excellence, the Centre is poised to significantly impact India's maritime safety landscape, saving countless lives and enhancing the country's maritime capabilities for years to come.

The ONGC Sea Survival Centre serves as a testament to excellence, offering comprehensive training in emergency response and sea survival techniques. With the capacity to train between 10,000 to 15,000 personnel annually, it represents a significant advancement in bolstering India's readiness to effectively address maritime emergencies. Staffed by experienced professionals and equipped with cutting-edge technology, the Centre aims to equip individuals with the necessary skills to navigate challenging situations at sea.

In addition to the inauguration of the Sea Survival Centre, Prime Minister Modi flagged off the 'First Crude Oil' tanker 'Swarna Sindhu' from ONGC's Krishna Godavari deepwater block. This historic event marks a significant achievement in India's energy sector, promising to reduce the

nation's dependence on energy imports and enhance energy security. Furthermore, with the successful commencement of "First Oil" from the deep-water KG-DWN-98/2 Block, situated off the coast of the Bay of Bengal, ONGC anticipates an increase in its total Oil and Gas production by 11 percent and 15 percent respectively.

Despite encountering various technological and Covid-related challenges, ONGC efficiently executed Phase 1 of the project in March 2020, achieving the commencement of gas production from the U field of the KG-DWN-98/2 Block within a record time frame of 10 months. The inauguration of First Oil on 7 January 2024 signifies the near completion of Phase 2, culminating in the commencement of oil production from the 'M' field of KG-DWN-98/2.

The development of this field presented unique technical challenges owing to the waxy nature of the crude. To address these challenges, ONGC adopted innovative Pipe in Pipe technology, a pioneering initiative in India. While certain subsea hardware required for this development was sourced

internationally to meet specific requirements, the majority of fabrication works were carried out at the Modular Fabrication Facility at Kattupalli. This underscores ONGC's commitment to promoting 'Make in India', thereby contributing to the establishment of a self-reliant energy sector in India. The flagship project remains on schedule, with the final phase of the project expected to commence production from the remaining oil and gas fields of the block by mid-2024. The peak production of the field is anticipated to reach 45,000 barrels of oil per day (bopd) and over 10 MMSCMD of gas, significantly aligning with the vision of the Hon'ble Prime Minister for an energy Aatmanirbhar Bharat.

As India embarks on its journey towards a sustainable, carbon-neutral future, ONGC continues to lead the way. Through initiatives like the Sea Survival Centre and advancements in clean energy solutions such as hydrogen production, ONGC remains at the forefront of India's energy transition. With a steadfast commitment to excellence and innovation, ONGC is charting the course for a greener and more sustainable future. ■

Charting the Green Path: Towards a Sustainable Steel Industry in India by 2047



The soaring aspiration of our nation to become 'developed' from its 'developing' status mirrors the extensive effort, commitment and visionary thinking which are propelling India into the ranks of leading global powers. We have attained a position on the global stage where we are now actively discussing and pursuing the objective of achieving developed nation status.

The Viksit Bharat@2047 - As India is approaching its centenary of independence, under the leadership of Hon'ble Prime Minister Shri Narendra Modi, the 'Vision Viksit Bharat@2047' envisioning India's ascent to superpower status has been launched. It is a bold aspiration to transform India into a developed nation and its identity as a developed country by the 100th year of India's independence in 2047. The

vision includes various aspects of development including economic advancement, achieving sustainable development goals, social progress, improving quality of life, enhancing the business operations, good governance and creating a robust infrastructure for making a developed country. Given the nation's place among the fastest-growing economies globally, there arises a pressing requirement for substantial infrastructure expansion, increased integration of digital technology across sectors and the implementation of a sustainable development strategy to accommodate this growth.

It is well established that infrastructure sector plays a vital role in the economic development by providing the foundational framework necessary for commerce and trade. It facilitates the movement of goods and people, enhances productivity,

attracts investments, and fosters innovation. Additionally, robust infrastructure such as transportation networks, communication systems, energy facilities and water resources contribute to improve the overall quality of life for citizens. Investments in infrastructure not only stimulate economic growth but also enable countries to remain competitive in the global marketplace.

The steel industry serves as the backbone of infrastructural growth and the construction sector alone is responsible for over fifty percent of steel consumption. Commensurate with the evidently expanding and developing infrastructure landscape, a target of 300 MTPA of steel production capacity by 2030-31 was also laid out for domestic steel sector in the form of National Steel Policy-2017. Government's push for infrastructure development



View of Green SAIL Steel Plant at Salem.



Top Recovery Turbine #BF 8, Bhilai

through various projects and schemes like Gati-Shakti Master Plan to provide multimodal connectivity infrastructure to various economic zones, Make-in-India initiative for manufacturing sector, projects like Bharatmala & Sagarmala etc and other flagship schemes would provide impetus to the demand and consumption of steel in the country.

India's transition to a developed nation status by 2047 under the 'Viksit Bharat@2047' initiative emphasizes the importance of greener technologies and sustainable practices, particularly in the steel industry. The domestic steel industry has already embarked on the ambitious capacity expansion by means of both greenfield and brownfield projects. However, the road ahead needs to be traversed with caution, taking into account the demands of the future world. The Viksit Bharat@2047 endeavours to enhance India's green and clean initiatives. In the realm of environmental sustainability, our industries must become fully compliant with the ESG goals. Net Zero emission, carbon footprint

reduction and becoming much more energy efficient are the need of the hour in our trajectory to be on the world map of economic activities.

Aligned with India's pledges for achieving net-zero emissions, as articulated in COP-26, the Ministry of Steel has embarked on several initiatives aimed at decarbonizing the steel sector which include constitution of 13 Task Forces with the engagement of industry, academia, think tanks, S&T bodies, different Ministries and other stakeholders to discuss, deliberate and recommend upon different levers of decarbonisation of steel sector. Ministry of New and Renewable Energy (MNRE) has announced a National Green Mission for green hydrogen production and usage. The steel sector has also been made a stakeholder in the mission. The steel sector has adopted the Best Available Technologies (BAT) available globally, in the modernization & expansions projects.

While there is a widespread consciousness and initiatives are being actively taken by the

steel makers across the country to adopt the most environment friendly technologies and steel production methods which minimize the negative impact on environment, the change will not come overnight. The existing technologies, recent modernizations and the in-use steel production cannot be replaced in the blink of an eye as those require huge investment of capital and time. The phasing out will be in place and the planning is already being discussed.

The steel industry contributes to around 7% of the total global greenhouse gas (GHG) emissions and has a significant role in the decarbonisation efforts of any nation.

Steel Authority of India Limited (SAIL), as one of the leading Steel makers in India, has been instrumental in laying a sound infrastructure for the industrial development of the country since inception. As a responsible steel maker, addressing global concern for climate change and carbon footprint reduction has become an integral part of the company's policies and operations. The company has already initiated decisive actions to minimize impact of its operations on global climate change issues. Being an environmentally conscious and responsible public sector undertaking, SAIL has been taking wide ranging steps towards reduction of carbon dioxide emissions from its operations, in-line with the India's NDC commitment. A host of state-of-the-art energy-efficient technologies, like Coke Dry Quenching (CDQ) facility for coke Quenching, Top Gas Recovery Turbines (TRT) for

power generation by utilizing waste top pressure from BF flue gas, Waste Heat Recovery Systems (WHRS) for capture and utilization of sensible heat from waste gases, Variable Voltage Variable Frequency (VVVF) drives in machineries and by-product gas based power generation etc.

Also, SAIL has created carbon sink through achieving plantation of more than 218 lakhs since inception.

SAIL has and promoted renewable energy installations across the company. Solar lighting / water heaters etc. has been taken up in some of the hospitals, guest houses, inside plant premises and also at some of the peripheral villages.

Towards net zero steel making, the company has given due emphasis on maximizing energy efficiency, resource efficiency, energy transition, process transition among others.

Some of the notable initiatives and strategies include:

- Raw material quality improvement
- Reduction in coke rate
- Maximising waste heat recovery
- Enhancing By product gaseous fuel recovery and utilisation
- Increased share of renewable energy
- Energy efficient drives and lighting
- Products and process innovation
- R&D initiatives for developing low carbon technologies for iron & steel making.
- Partnership with the Technology providers of national and international repute for CCUS / Green steel making

The increased frequency of extreme weather events, such as super cyclones and shifts in

precipitation patterns observed in recent times serve as stark reminders of global climate change. Through extensive research and analysis, a clear correlation has been established between anthropogenic emissions and these climatic shifts. Within this landscape, the iron and steel industry emerges as one of the most challenging sectors to decarbonize due to its significant greenhouse gas emissions. However, as India sets its sights on achieving development goals by 2047, the path forward lies in embracing greener technologies and sustainable practices. By prioritizing innovation and investing in clean energy solutions, the iron and steel sector can play a pivotal role in India's transition towards a low-carbon economy. With concerted efforts and a commitment to environmental stewardship, India can pave the way for a sustainable and prosperous future for generations to come. ■



Ecorestoration at Purnapani, SAIL.

REC: Energizing Towards Viksit Bharat



REC Limited has played a pivotal role in shaping India's power sector landscape. Established in 1969 with a focus on electrifying rural India, REC has evolved into a leading NBFC to finance the entire power sector value chain, including generation, transmission, distribution, and renewable energy segments. As India's power sector is standing at the threshold of a significant transition committed to increase the green energy contribution and achieve the ambitious target of net zero emissions by 2070, REC is a key player in this journey.

Illuminating India: REC's primary mission since its inception has been to bridge the gap and electrify whole India. Through financial assistance for power projects in underserved areas, REC has significantly contributed to India's electrification drive. Our financing has helped build transmission and distribution lines, substations, and renewable energy projects, bringing light to millions of homes across the country. Every fourth bulb illuminated in the country is financed by REC. In last 10 years, REC has disbursed Rs. 7.32 lac crore to the power & infra sectors.

Financing Power Growth: REC has emerged as a critical financial institution for the entire power sector. We provide loans for various power projects, including generation (thermal, hydro, renewable), transmission,

and distribution including backward and forward linkages in Coal Blocks, Pollution Control measures to improve emission efficiency like FGD installation, Super Critical Thermal Plants etc. The loan book of REC has maintained its growth trajectory and increased to ₹ 4.97 lakh crore as on 31st December 2023 against ₹ 4.11 lakh Cr as on 31st December 2022, representing a healthy growth of 21%. Our 90% lending is in state sectors and 10% lending in private sector. The company is witnessing healthy traction in the new projects and the same is evident from the healthy growth in sanctions. The sanction during the 9M period FY 24 achieved Rs. 3.26 lakh crore against Rs. 1.92 lakh Cr achieved during 9M FY 23 period, representing a growth of 69%. The sanctions book shall translate into the loan book in the

next couple of years. In line with the Installed Capacity projections of the country to grow from 416 GW in FY 2023 to 777 GW by FY 2030, REC's total Loan Book is targeted to grow from current level of 4.97 lakh Cr to 10 lakh crore by FY 2030.

Maharatna Status and Diversification into Non-Power Infrastructure: In September 2022, REC got Maharatna Status. Post this, Govt. allowed REC to lend to the logistics and infrastructure sectors up to 1/3rd of our total sanctions annually. Till 31st December 2023, REC sanctioned Rs. 1.27 lakh crore to non-power infrastructure sectors comprising Roads & Expressways, Metro Rail, Airports, IT Communication, Social and Commercial Infrastructure (Educational Institution, Hospitals), Ports and Electro-Mechanical (E&M) works



in respect of various other sectors like Steel, Refinery, etc. The lending mandate accorded by Ministry of Power to finance non-power infrastructure is likely to comprise around 20% of the loan book of REC by FY 2030.

Championing Renewable Energy: Renewables capacity in the country is estimated to reach 485 GW (Non-Fossil 500 GW) from current 182 GW (Non-Fossil 190 GW) by 2030. In line with this energy transition pathway of the country, REC's Renewables Loan Book is targeted to grow from current Rs. 33,253 crore to Rs. 3 lakh crore by 2030 representing a CAGR of 35%. The recent pace of sanctions in renewables confirms this target is on track

Innovation and Efficiency: REC has continuously embraced innovation to improve its services and efficiency. We have implemented online loan applications, streamlined processes, and adopted digital solutions for faster loan disbursements. Additionally, REC actively participates in the development of new financial instruments, such as green bonds, to support sustainable power projects. REC shall continue to strive to raise cheaper resources from all sources, domestic and international and provide cost effective financing products to the sector.

Financial Sustainability: REC has maintained a strong financial performance, contributing to India's overall economic well-being. We have consistently achieved healthy profitability and a strong credit rating, allowing us to provide competitive financing options. REC holds the highest credit rating from

CRISIL, ICRA, IRRPL & CARE and internationally rated at par with the sovereign ratings. Additionally, our focus on diversified loan portfolios helps mitigate risk and ensures long-term financial stability. It is not the only the credit growth REC is focusing but also the quality of loan assets, which is evident from the fact that no new NPA has been added during the last eight consecutive quarters and the net NPA has come down to 0.82% as at Dec'23 from 3.32% as at Mar'20. We expect, by March 2025, we shall be a Net zero NPA company.

Nodal agency: REC continues to play a key strategic role in the flagship schemes for the power sector and has been nodal agency for Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGAYA), Deen Dayal Upadhaya Gram Jyoti Yojana (DDUGJY) & National Electricity Fund (NEF) Scheme. REC has also been made the nodal agency for the Revamped Distribution Sector Scheme (RDSS) under which Govt. targets to install 250 million smart meters by 2025. Recently, REC has also been given the responsibility of PM Surya Ghar Muft Bijli Yojana under which Govt. targets to install Roof Top Solar on 1 Crore households.

54EC Bonds: REC has always carved a niche for itself with its innovative and forward thinking ideas. In 2023, the company has unveiled an array of customer centric services for the convenience of its 54EC Capital Gain Tax Exemption Bonds holder including the 'SUGAM REC' mobile app. The idea behind these innovations is to move from

customer satisfaction to customer delight.

Social Impact: At the core of REC's business practices, there has been a constant endeavour to balance economic, environmental, and social growth. Through its CSR arm, the REC Foundation, the company has been actively involved in facilitating inclusive growth through projects in areas including health and wellness, women empowerment, rural development, environmental sustainability, and education among many others. Last year, REC Foundation has made major impact by supporting the training and incubation of sports talent in the country, providing medical assistance and educational facilities to the last mile, and running skilling programmes for the youth. Through these projects, REC is working constantly to create a more equitable and sustainable society, and bringing about meaningful difference in lives of the beneficiaries. REC has supported over 400 projects in healthcare, sanitation, clean water access, education and skill development, women empowerment, sports and environmental sustainability. With over Rs.1300 Crore of CSR funds disbursed, REC's cumulative commitment towards CSR activities stands at more than Rs.2000 Crore.

In conclusion, REC Limited's achievements over the past five decades have been instrumental in shaping India's power sector. From illuminating rural homes to fostering renewable energy adoption, our multifaceted efforts have empowered communities, strengthened the economy, and paved the way for a sustainable future.

REC Achievements over years

- **2017** – First Indian PSU to issue USD Green Bonds on London Stock Exchange
- **2018** – Achieved 100% village electrification under DDUGJY as Nodal Agency
- **2019** – Achieved 100% Household Electrification under SAUBHAGYA as Nodal Agency
- **2021** – Appointed as Nodal Agency for RDSS
- **2022** – Raised Largest-ever Syndicated Term Loan by an Indian NBFC with USD 1,175 Million Term Loan
- **2022** – Conferred Maharatna Status by the Govt. of India
- **2022** – With Government's permission forayed into Infrastructure and Logistics sector financing.
- **2023** - Issued Green Bonds of USD 750 million & listed on GIFT IFSC Stock Exchanges
- **2023** - Secured place in MSCI Global Standard Index
- **2023** - Becomes the largest NBFC on standalone basis with a loan book of 4.97 lakh Cr
- **2023** - Lowest net NPA in the Industry at 0.82%
- **2024** – With market sentiment on the rise and investors showing stronger interest, ascended from Mid Cap to Large-Cap basket in the AMFI's latest list published (Jan'24).
- **2024** – Issued first ever Yen denominated Green bonds by Indian PSU of JPY 61.1 Billion, which marked the largest ever Euro-Yen issuance and also non-sovereign Yen-denominated issuance ever by a South & South-East Asian issuer.
- **2024** – Appointed as Project Implementing Agency for PM Surya Ghar Muft Bijlee Yojana. ■

Defence Electronics & Beyond: The Saga of BEL



The Genesis

In 1948, a year after Independence, the Government of India announced a comprehensive industrial policy. It empowered the Government to set up infrastructure to manufacture a host of critical products. The task of establishing a radar and electronics factory was given to the Ministry of Defence. It was from this authority that Bharat Electronics Limited (BEL) was established in Bengaluru in 1954 to meet the specialised electronic needs of the Indian Defence services.

Beginning with Radio Communication products, BEL has grown into a multi-product, multi-technology, multi-unit Company with a strong presence in the field of Radars & Fire Control systems, Missile systems, Communication & C4I systems,

Electronic Warfare & Avionics, Anti-submarine Warfare systems, Electro Optics, Tank Electronics & Gun Upgrades, Civilian products and Strategic Components.

From a humble beginning 70 years ago, BEL is today a Navratna PSU and India's leading professional electronics company fast expanding its footprints globally. Also, constant endeavours to move up the value chain has catapulted BEL from an electronics product/system based engineering company to a major supplier of system of systems and a total solution provider for high-end strategic systems.

BEL's main customers include the Army, Navy, Air Force, Coast Guard, Paramilitary Force, Police, state government departments and consumers of professional electronic components.

Opening new vistas in Non-Defence

BEL's tamper-proof Electronic Voting Machines have revolutionised the voting system in India, making the process transparent and foolproof. When the country wanted its services most, BEL manufactured 30,000 ICU Ventilators in record time to help the Government combat the pandemic.

Defence, being the mainstay of BEL, has traditionally been contributing to around 80% of the Company's annual sales revenue. BEL, however, has been continuously exploring opportunities in allied non-defence areas. The Company aims to increase its non-defence share in the overall business in the coming years.

Today, BEL's Non-Defence business includes solutions for Civil Aviation sector including Air Traffic Controller Radars, Anti Drone systems, Space / Satellite Electronics, Satellite Assembly & Integration, Unmanned Systems, Solar Business, Railway and Metro solutions, Software as a Service, Network & Cyber Security, Energy Storage products for Electric Vehicles (Li-ion & Fuel Cells, Charging Stations, etc), Homeland Security & Smart City businesses, Smart Meters, a range of Medical Electronic and



Weapon Locating Radar



Akash Air Defence Weapon System

health care solutions, Artificial Intelligence, Communication Radios & Networks, Composite Shelters & Masts, etc.

Recently, BEL announced the creation of four new Strategic Business Units for the business segments, Network & Cyber Security, Unmanned Systems, Seekers (RF & IR) and Arms and Ammunition. This wide bouquet of businesses in non-defence would play a key role in driving BEL's growth in the coming years.

In Sync with 'Make in India'

BEL has been doing its bit to promote the Government's Make in India initiative by laying strong thrust on in-house R&D and indigenisation, outsourcing

from Indian private industries, Public-Private Partnerships, Joint Ventures, capacity expansion and modernisation.

The Akash Air Defence Weapon System of BEL is a great success story and shining example of BEL's indigenous design, development and manufacturing drive. The Air Defence System for Indian Air Force, for which BEL is the lead integrator, is also a role model for Public-Private Partnerships, with around 500 vendors including more than 100 MSMEs. BEL is taking several initiatives to complement the strengths of the private sector to build a strong industrial base in India. It has opened up its state-of-the-art testing and

infrastructure facilities for use by private industries.

BEL has installed a chain of static radars to strengthen the surveillance of the country's over-7,500-km-long coastline. The Coastal Surveillance System developed by BEL for the Indian Coast Guard is now being offered to other friendly countries as well as for generating export business. In recent years, BEL has made giant strides in Radars with the induction of Weapon Locating Radar and 3D Tactical Control Radar.

Indigenisation for self-reliance

The company is taking many steps to increase the level of indigenisation of its products and systems. These include strengthening technology development through short, medium and long-term technology roadmaps, increased investments in R&D and setting up of a Company-wide Knowledge Management System. BEL has empanelled niche Indian technology companies / academic institutions / consultants for joint development of subsystems



Coastal Surveillance System from BEL



Electronic Voting Machine

/ products through the collaborative R&D route. Such local developments would ensure higher levels of indigenisation in all products. BEL is also taking initiatives for joint development with reputed foreign companies to quickly harness specialised technologies into new products.

The Company has created a 'Make in India Cell' to implement its outsourcing policy. Nodal officers have been nominated for outsourcing and vendor development in each of its nine manufacturing units.

Startup India is a flagship initiative of the Government of India, intended to build a strong ecosystem that is conducive for the growth of startup businesses, to drive sustainable economic growth and generate large scale employment opportunities. BEL has identified several areas for partnership with start-ups in new emerging areas including Machine Learning, Cyber Security, Artificial Intelligence, Embedded Computing and other latest technologies which can be used for Defence electronics applications.

Defence Innovation Organisation (DIO) is a Section-8 company, created jointly by BEL and HAL to support the country in building an eco system of entrepreneurship and innovation in Defence in India by implementing the iDEX framework. iDEX is aimed at fostering innovation and

technology development in Defence & Aerospace by engaging industries including MSMEs, Startups, individual innovators, R&D institutes and academia and providing them R&D grants.

Export potential

BEL is fast expanding its global presence. All-out efforts are being made to tap new export markets across the globe. In a bid to develop new markets in the Indian Ocean Region (IOR) and friendly foreign countries (FFCs), BEL has operationalised overseas marketing offices in Oman, Vietnam, Sri Lanka and Myanmar. BEL has also expanded its Singapore and New York Regional Offices to handle marketing activities.

The Government is encouraging defence exports through many policy initiatives and has set a target of Rs.35,000 Crs by 2025. BEL has identified Exports & Offsets as one of its thrust areas and has drawn up plans to offer its select products and systems to various export markets.



BEL CV 200 Ventilator

On the road to growth

BEL continues to be a profitable company with a healthy order book position. The company has achieved a turnover of around Rs. 19700 Cr (Provisional & Unaudited), during the Financial Year 2023-24, against the previous year's turnover of Rs. 17,333 Cr registering a growth of 13.65%. In the fiscal year 2023-24, BEL successfully secured orders worth around Rs. 35000 Cr. With this, the total order book of BEL as on April 1st, 2024, stands at around Rs. 76000 Cr.

BEL also achieved Export sales of around US\$ 92.98 Million during FY 2023-24, as against the previous year's export turnover of US\$ 48.33 Million, registering a growth of 92%. As on April 1st, 2024, BEL's export order book stands at USD 407 million, with export orders acquired during the fiscal year amounting to USD 211 million.

Poised for sustainable growth

"Quality, Technology & Innovation" has been the time-tested guiding mantra and motto of BEL. The Company is deeply embedded in its culture and business processes alike. The capability to offer tech-intensive, customised solutions, an agile and secured manufacturing infrastructure, highly experienced and technically qualified manpower and ability to offer long-term product support for strategic programmes are some of the unique qualities of BEL, which give it the competitive advantage over its competitors and will continue to keep the Company sustainable in future. ■

Engineers India Limited (EIL): Engineering the Global Energy Landscape



The world is witnessing a paradigm shift in the global energy landscape and countries across the globe have been tuning their energy policies aligned with the contemporary energy demand to buttress their renewable energy portfolio. India is one of the leading nations that has taken several key steps including the Biofuel Policy implementation, promoting Energy Conservation & Energy Efficiency, rolling out Green Hydrogen Policy to name a few in the recent past showcasing its commitments towards meeting its Intended Nationally Determined Contribution (INDCs) targets.

Leadership in Refining and Petrochemicals Business

EIL has been changing its gears in sync with the demand of the energy industry. The organization's journey of building the energy infrastructure for India started way back in 1965 with the Madras Refinery Project. Since then, the role of EIL has been instrumental in bringing new technologies in the country both in terms of assessment and handholding towards building the national energy infrastructure. As we know, India is committed to a mammoth economic target to reach \$5 trillion by the year

2025 and around \$7 trillion by 2030 which necessitates the higher energy requirement for the country in the years to come. Owing to the burgeoning energy demand, India's refining capacity is anticipated to reach around 450 Million Metric tons per Annum (MMTPA) from the existing capacity of about 254 MMTPA. In its journey of around six decades, our company has established itself as an ecosystem enabler with an array of expertise in diverse industrial sectors including Refining, Fertiliser, Energy efficient Infrastructure, Chemicals & Petrochemicals among others.

It is worth noting that 20 out of 23 Refineries with a combined refining capacity of around 165 MMTPA and 10 out of 11 Mega Petrochemical Complexes in India have EIL's strong footprints. EIL has an impressive track record of implementing large number of projects in India and overseas notably Middle East, North Africa, Central Asia and Far East. Over 7000 assignments consisting of 400 major projects valued at more than US\$ 200 Billion have been undertaken by EIL.

Along with robust GDP growth, the chemicals and petrochemicals are also likely to grow at almost the same pace with that of

GDP. Our current per capita consumption of petrochemical which is only 1/3rd of world average is the driving force behind the anticipated growth in the petrochemical sectors. The size of petrochemicals industry is projected to reach around \$370 billion by the year 2040 from its present worth of around \$51 billion to meet the demand of plethora of petrochemical products in the years to come.

EIL has played a key role in the implementation of mega petrochemical projects in India and is poised to take up such assignments in the years to come with its impeccable track record in providing its services in the Oil & Gas business. For instance, HRRL Project is one of the highest petrochemical intensities grassroot integrated refinery cum petrochemical complex in India being implemented by EIL. Its petrochemical intensity is almost 25% and is configured to diversify the products based on the prevailing fuel and petrochemical market demand.

It is worth noting that EIL has already implemented one of the complex petrochemical projects in the form of Guru Gobind Singh Petro Addition Project (GGSPAP) for HMEL in which a world class dual feed cracker facility

has been installed. On the other hand, EIL has also been involved in the preparation of DFR for integration of petrochemical complex with the existing Bina Refinery of BPCL.

In the past few years, EIL broadened its horizon in the hydrocarbon and fertilizer business beyond its consultancy and engineering services portfolio. This is reflected in the investments performed by the company in Numaligarh Refinery Limited (NRL), a reputed oil marketing company and one of the largest capacity urea producing Ramagundam Fertilizer Corporation Limited in the state of Telangana. RFCL was recently dedicated to the nation by the Honourable Prime Minister of India.

Expanding Geographical Outreach

EIL has been transforming its business operations to emerge as a global industrial powerhouse through its robust engineering and technology portfolio. EIL has already showcased its unparalleled track record of mega project implementation in new geographies. The execution of Dangote Oil Refinery Project (DORC) in Nigeria having total capital outlay of almost \$20 billion with highest single train refining capacity in the world exemplifies EIL's contribution in fulfilling our Honourable Prime Minister's vision of 'Local to Global'.

EIL has provided its services for the India-Bangladesh Friendship Pipeline which was jointly inaugurated by the Hon'ble Prime Minister of India Shri Narendra Modi and Bangladesh PM Sheikh Hasina in the recent past.

The company entered in the new geography and marked its footprints in the Latin America as well. It is providing Project Management Consultancy (PMC) services for the Integrated Natural Gas Liquids Plant and 300 MW Combined Cycle Gas Turbine Powerplant in Guyana. In addition, EIL is playing a key role in the execution of a Grassroot Mongol refinery project under the G2G collaboration framework between India and Mongolia towards meeting the energy demand for the country. The Mongol refinery project is testament of EIL's capabilities of providing services in the harsh climatic conditions.

EIL has inspection offices across the globe catering to both domestic and international market. The company has been able to strengthen its outreach in the Middle East and North Africa (MENA) region by strengthening its engineering office in Abu Dhabi, UAE.

Emerging Green Business Ecosystem Enabler

The company has marked its strong presence in the green energy business both on its own or in collaboration with national and international partners in the areas of Green Hydrogen/ Green Ammonia, Bio Fuels, Carbon Capture and Utilization (CCUS), Concentrated Solar Power (CSP), Flare Gas Recovery etc., and emerged as an ecosystem enabler to assist its diverse clientele in achieving their energy transition objectives. For instance, EIL has recently executed an MoU with the Sunrise CSP group to implement projects based on various applications of Concentrated

Solar Thermal (CST) technology in the process units leading to lower the consumption of fossil fuels.

The first step towards achieving the energy transition objectives is to identify the low-hanging fruits in respective industrial sectors. EIL has performed energy efficiency improvement studies (EEIS) of Refineries and Petrochemical complexes for both Indian and International clients. This could be one of the important steps to achieve the energy conservation targets. EIL also offers IIoT based digital technological solutions for optimizing the performance of existing assets in terms of energy consumption.

The company has developed unique capabilities and experience for implementation of Biofuels projects and is providing its services in the implementation of one of largest capacities Biorefinery project in India for Assam Biorefinery Private Limited (ABRPL), a JV of NRL, Fortum and Chempolis OY. The project is being implemented by EIL based on the technology supplied by Chempolis OY, Finland. This project is anticipated to set the benchmark for India's Biorefinery programmes in the coming years. In addition, EIL is playing a crucial role in providing technological solutions for decarbonizing the aviation sector in collaboration with CSIR-IIP, Dehradun. One of the Bio-ATF plant is already being implemented by EIL for one of its clients.

Further, the company has also broadened its horizon in implementation of energy efficient infrastructure projects.

Some of them include consultancy services for Jewar Airport, Noida, AP Airport Development Corporation etc. It is worth noting that EIL is already implementing infrastructure projects related to state-of-the-art Data Centres, Leh Airport, GRIHA and LEED compliant Buildings and projects related to Restoration of Heritage buildings etc.

There has been a strong push to roll out green hydrogen projects at large scale to accelerate the decarbonisation of the industry. EIL has been front runner in implementing the projects related to Green Hydrogen as well both for its production through electrolysers and blending GH2 in the existing natural gas pipelines.

Hence, EIL's role is not only significant in the growth of energy industry around energy transition imperatives but also immense in assisting the industry in their energy transition journey to achieve net

zero carbon emissions within the projected timeline. EIL is leading the industry by example and declared to become net zero carbon emitting corporate by the year 2035.

EIL has strategized its growth plan with five-pronged strategy of Strategic collaboration, Diversification in new areas, Innovation & Technology, Expanding Geographies and Operational Excellence. In all these areas, EIL has made significant progress in the recent past and is accelerating its efforts to increase the revenue by securing more business in the sunshine areas beyond its robust oil & gas portfolio both in India and overseas.

Moving Ahead

India's energy transition cannot be isolated with the rest of the world in the light of changing geopolitical scenarios and Technology Readiness Level

(TRL) of the development in the emerging areas of the energy sector across the globe.

The role of Research and Development (R&D) in the areas of emerging energy technologies would be crucial in achieving the climate change mitigation targets within the defined timelines. However, the pace of successful implementation of clean energy technologies across diverse sectors warrants collaborative efforts among various stakeholders.

Taking the success story further and bringing more values through R&D and innovation culture in the organisation, EIL has declared this year as "The Year of COLLABORATION" to provide innovative and cost-effective technological solutions to its diverse clientele fully aligned with EIL's new vision "To be a Global Leader offering Total Energy Solutions for a Sustainable Future." ■

Paving the Way for Self Reliance

HAL's Contribution towards Viksit Bharat@2047



Hindustan Aeronautics Limited, one of Asia's largest defence and aerospace Companies has been at the forefront of building an aerospace ecosystem in India and has established proficiency in every field of aerospace in terms of design, development, manufacturing, overhaul and upgrade of aircraft, helicopters, aero-engines, avionics and accessories. HAL produced aircraft have been the mainstay of the Indian Armed Forces with around 76% of the current flying fleet of Indian Defence Services bearing HAL footprint in aircraft repair and overhaul segment. The Company is creating a vibrant aerospace ecosystem conducive for indigenization efforts to support the nation's quest for self reliance.

Originally conceived as a centre for the overhaul of fighters and bombers, HAL embarked on indigenous design and development of aircraft as early as the 1940s, thus supporting the 'Make in India' initiative over the years.

Learning through Transfer of Technology (ToT) and indigenous development of platforms has always been HAL's foremost strategies since its inception. In 1940, HAL started with licensed aircraft manufacturing such as Harlow PC-5A trainers, Curtiss 75A-5P Hawk Fighters and Vultee V-12-D attack bombers.



HAL's Hyderabad Division, under its Corporate Social Responsibility sponsored "Conversion of Bio waste to Compressed Natural Gas (CNG) plant" to Greater Hyderabad Municipal Corporation (GHMC), Kukatpally Zone. The project was inaugurated and handed over to GHMC by Shri A.B. Pradhan, Director (HR), HAL recently.

Subsequently, in the 1960s, HAL entered into licensed manufacturing of Russian origin aircraft by establishing manufacturing and overhaul facility for MiG 21 FL aircraft at Nashik. Later, HAL also produced MiG 21 variants, MiG 27 M and Su-30MKI fighter aircraft through ToT from Russia. HAL's ToT programs have been remarkably successful and HAL has produced more than 2700 aircraft under licensed manufacturing since beginning. The skill and technology learned through ToT has been utilized for upgradation of aircraft to meet the demand of IAF and also for the development of indigenous D&D projects. Resorting to ToT

as strategy for capability building and skill development within country has enabled HAL to contribute to Indian military programs.

On the indigenous programme front, HAL designed and developed India's first indigenous aircraft-- Hindustan Trainer-2 (HT 2) which served the Indian Air Force for nearly three decades as the Basic Trainer. With valuable exposure received from its license manufacturing experience, several indigenous aircraft - Pushpak (Club Trainer), Krishak (Air observation post aircraft), Basant (agricultural aircraft), Hindustan Fighter (HF) 24 (Marut), Hindustan Jet Trainer (HJT) 16 and Hindustan Piston

Trainer (HPT) 32 were designed, developed and manufactured by HAL in its concerted efforts towards achieving self-reliance. So far, HAL has indigenously designed, developed and manufactured 17 types of aircraft and helicopters. Another 14 types have been produced under licence from foreign OEMs.

HAL formulated a strategy for indigenous development not only for aircraft, helicopters, aero engines, Unmanned Aerial Vehicles (UAV), aircraft systems but also for advanced aerospace materials and technologies that will benefit the nation. To ensure long term support, HAL earmarked indigenization as a key thrust area and is continuously increasing the indigenization content in major platforms.

HAL has already proven its mettle in the fixed and rotary segment. Su-30 MKI, Jaguar, Hawk and LCA are the best-in-class fighter aircraft being manufactured by HAL.

A civil variant of the military transport aircraft Do-228 has also been developed by HAL which is most suitable for Regional Connectivity Scheme (Ude Desh Ke Aam Nagrik) under 'Make in India'. The Advanced Light Helicopter (ALH) Dhruv, indigenously designed and developed by HAL is a benchmark for the Indian rotorcraft industry. The ALH was designed at a time when there was very little rotorcraft knowledge in India and the project was a first of its kind integrating multiple technologies on a single platform to produce a world-class helicopter. Recently, HAL achieved the milestone of producing 300th ALH and a total of over 4,00,000 flying hours of

ALH is a testimony of HAL's capabilities. In addition, HAL's Cheetah and Chetak helicopters are being widely used by the Armed Forces for more than five decades.

HAL's current indigenous development programs include Light Combat Aircraft (LCA), Hindustan Turboprop Trainer (HTT-40), Light Combat Helicopter (LCH), Light Utility Helicopter (LUH), Advanced Light Helicopter (ALH) – Weapon System Integration (ALH-WSI), rotary UAVs, Hindustan Turbofan Engine (HTFE 25kW), Hindustan Turboshaft Engine (HTSE 1200kW) etc. The latest certified HAL platform, LUH attained the Initial Operational Clearance (IOC) in Feb 2020, and recently successfully completed Hot & High altitude user evaluation trials at Leh, demonstrating its payload capability in Siachen glacier at higher altitude.

The dedicated attack helicopter LCH, is the only helicopter in the five to six ton weight class that has demonstrated its capacity to land and take-off at an altitude of 4700 mtrs at Siachen with a payload of 500 kg.

The LCH is also the first helicopter to fire Air-To-Air Missile against an aerial target and has received its Initial Operational Clearance (IOC) for both the IAF and the Army variants. Futuristic programs such as design & development of Indian Multi-Role Helicopter (IMRH), higher thrust engines etc are also on the anvil.

HAL has also successfully executed upgrades of Jaguar NAVWASS aircraft to DARIN-II Standard, MiG-21 BIS, MiG-27M, Sea Harrier, HS-748 (Avro),

Do-228, Cheetah Helicopter re-engining (Cheetal) etc. thus prolonging the life and increasing the lethal capabilities of these already proven platforms. Current upgrade programs under progress are Jaguar DARIN-III, Mirage 2000 aircraft upgrade, indigenously upgraded Hawk Mk132 aircraft with enhanced operational and training capabilities etc.

Apart from platform development, HAL undertakes design, development and production of airborne systems covering equipment like communication, radar, data recorders, and mission computers in the field of avionics. Further Design, Development and production of mechanical systems such as hydraulic systems, environmental control systems, fuel systems, wheels and brakes, flight instruments etc. are also undertaken. HAL has taken proactive steps to ensure successful implementation of the indigenization program that includes collaboration with DRDO labs, premier educational institutes for development of latest technologies etc. Aerospace is a highly technology intensive domain where R&D holds the key to technological superiority and is a thrust area for HAL. HAL spends around 6 to 9% of its sales towards R & D.

HAL has established an exclusive Indigenisation department at the corporate level to implement this program. Dedicated indigenization cells are set up at the divisional levels for indigenization of items/LRUs, which are imported, from foreign OEMs.

The strategy for identifying the items for indigenization

was adopted for components, standard parts, spares and LRUs, sub systems and systems from the point of self-reliance, economy and obsolescence management. Every year sizeable no. of items are indigenized with considerable foreign exchange savings. Some major items indigenized successfully are Automatic Flight Control System (AFCS), Integrated Avionics and Display System (IADS), Real Time Operating System (RTOS), Mission Computer, Air Data Unit (ADU), Solid State Flight Data Recorder (SSFDR), Tactical Air Navigation (TACAN), VHF Omni direction Radio Range/ Instrument Landing System (VOR/ILS), Yaw Damper Computer Unit etc.

To ensure inclusive growth, HAL is encouraging Indian private sector participation in the indigenization efforts. HAL is also focusing on identification of suitable vendors within the country at all levels and currently around 2500 vendors are registered with HAL for outsourcing activities.

The list of imported items are being uploaded in Srijan defence portal for possible indigenisation. In a major initiative, HAL identified and made a comprehensive roadmap for indigenization of complex aircraft Systems, LRUs & other critical Items across its major platforms. 430 such imported items are included in the four PILs issued by DDP, MoD. Indigenisation of these items will be a significant milestone towards Atmanirbharta in Defence Sector. Over 85 types of test facilities available at HAL could be utilized by the Indian industries,

furthering the indigenous development efforts that have been listed on HAL website. These facilities are extensively utilized by both government organizations and Indian private companies.

In line with Government announcement on development of two defence industrial production corridors in Uttar Pradesh & Tamil Nadu to promote domestic production of defence equipment by public sector, private sector, and MSMEs [Micro, Small, and Medium-sized Enterprises], HAL is supporting by way of investing in HAL units under the UP Defence Production Corridor.

This will create business opportunities for the local industries for the next 25-30 years and will help in generating employment potential, both directly and indirectly.

HAL has implemented the Make-II (Industry Funded) procedure with assured order quantity after successful development of items through private vendors in compliance of the framework promulgated by MoD with an objective of wider participation of Indian industry and impetus for MSME/start-ups sector. HAL has identified items for indigenisation under Make-II. The items identified for indigenisation under Make-II are being uploaded in Srijan portal.

Further, HAL is continuously uploading the details of imported items in Srijan portal of DPIT, MoD which acts as an interface or link between DPSUs and probable private vendors for indigenisation of imported components including alloys and special materials.

HAL has planned to indigenize significant items supporting the Atmanirbhar Bharat Abhiyan. These items are planned to be indigenised during the next five years through various modes of indigenisation including Make-II process.

HAL participates/ organizes various vendor development program of MoD, Industrial body/ Cluster to promote Indigenisation through webinars, exhibitions/ seminars through Physical / Online modes.

HAL has a long history of embedding sustainability in its operations while pursuing a vision of a developed India. Long before terms like CSR became a buzzword, HAL has been adopting an inclusive growth framework in its operations.

HAL has embraced the community development approach to give back to the society in which it operates. HAL has been working on several initiatives related to water and energy conservation, waste management, healthcare, etc., to minimize the negative impact on the environment.

With an increasing focus on Environment, Social and Governance (ESG) framework, HAL has developed robust practices to address issues such as human rights, human capital development, and health and safety of the employees, contractors, and customers.

HAL is also certified for ISO 14001-2015 Environment Management System and ISO 45001-2018 OHSMS (Occupational Health and Safety Monitoring System).

Integrity, ethics, honesty, accountability, timely disclosures, and transparency are the pillars

of good corporate governance. These principles are the bedrock of HAL's corporate governance as well. As a listed company, HAL adheres to Corporate Governance requirements stated by the Department of Public Enterprise (DPE) and SEBI (LODR) Regulations, 2015 (Listing Regulations) and the Companies Act 2013. HAL has

received an 'Excellent Rating' on the MoU parameters for several years. HAL is a front-runner in building and nurturing a defence manufacturing ecosystem in India. HAL's role in nation-building has inspired the development of the allied industries to make India 'Aatmanirbhar' in defence. HAL is now ranked 29th among global defence companies.

HAL's unique position as a role model in this industry places a greater responsibility on its leaders to strengthen its corporate governance framework for business operations. HAL is facilitating indigenization at a greater scale as the Government revitalizes the defence ecosystem towards realizing the dream of a Viksit Bharat@2047. ■

NALCO- A Brief Overview



Introduction:

National Aluminium Company Limited (NALCO), a 'Navratna' company under the Schedule 'A' category, was founded on January 7, 1981, with its registered office in Bhubaneswar. It is one of the country's most extensive complexes integrating bauxite, alumina, aluminium production, and power generation. Currently, the Indian government owns 51.28% of NALCO's equity capital. Since commencing its commercial operations in 1987, NALCO has consistently generated profits for 36 consecutive years. The company is a significant contributor to India's foreign exchange earnings and has been acknowledged as the world's most cost-efficient producer of bauxite and alumina for the past five years.

The company operates a bauxite mine with a capacity of 68.25 lakh TPA, an alumina refinery with a capacity of 21 lakh TPA situated in Damanjodi, Koraput district, Odisha, and an aluminium smelter with a capacity of 4.60 lakh TPA, alongside a 1200MW captive power plant located in Angul, Odisha. Additionally, the company has established 198 MW wind power plants across different sites in India and 850 kWp rooftop solar power plants at its facilities, contributing to the global effort for carbon neutrality.

The Company has regional sales offices in Delhi, Kolkata,



Mumbai, and Chennai, along with seven active stockyards across the Nation to serve domestic customers. Furthermore, NALCO possesses a dedicated bulk shipping facility for export of its products.

NALCO, a pioneering Public Sector Enterprise in India to make a significant entry into the global market with its registration on the London Metal Exchange (LME) since May 1989. The company has been publicly traded on the Bombay Stock Exchange (BSE) from 1992 and on the National Stock Exchange (NSE) since 1999. It boasts of multiple ISO certifications, including ISO 9001, ISO 14001, ISO 45001, ISO 50001, and SA 8000. The Data Centre at NALCO's Corporate Office and the Disaster Recovery Site at the Alumina Refinery have been awarded the ISO 27001:2013 Certification for Information Security Management System,

accredited by International Accreditation Services, USA.

NALCO's unwavering commitment to capacity utilization, embracing technology, maintaining quality, excelling in exports, and consistently turning a profit showcases the company as a shining beacon of India's industrial strength.

Growth Plans of NALCO

NALCO has meticulously outlined expansion strategies to fulfil its vision "To be a Premier and Integrated company in the Aluminium value chain with strategic presence in Mining both domestic & global, Metals and Energy sectors".

Currently, the Company is executing major projects like:

- 5th stream Alumina Refinery, which will enhance the Refinery capacity from 2.1 million tonne to 3.1 million tonne per annum.

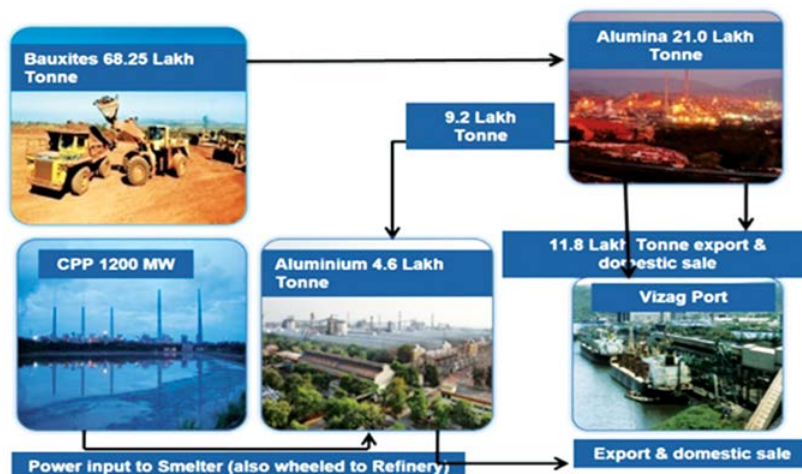
- To support the Alumina Refinery and raw material security, the Company is developing Pottangi bauxite Mines with a capacity of 3.5 million tonne per annum.
- Utkal D & E Coal Mines: Mining activities already started from Utkal-D coal block. It will add to the bottom line by reduction in coal procurement cost.

JV projects:

As part of backward integration, the Company has established a caustic soda plant in JV with Gujarat Alkalies & Chemicals Limited (GACL) in Gujarat. The Company has formed 'Angul Aluminium Park Private Ltd' (AAPPL), JV Company, with Odisha Industrial Infrastructure Development Corporation (IDCO) to give a boost to ancillary, upstream & downstream products related to aluminium industry. To acquire strategic mineral assets in overseas location and making supply in India, NALCO has formed Khanij Bidesh India Limited (KABIL), a JV Company, with HCL and MECL.

R&D and Innovation:

The Company pursues its R&D activities fervently and has already filed 44 patents out of which 31 patents have been granted and 8 have been commercialized. Major thrust areas of R&D of NALCO are: (i) Cost reduction through minimizing consumption of raw material & utilities (ii) Improvement in productivity, production & quality (iii) Waste to Wealth Creation (iv) New product development (v) Mitigate environmental impact



(vi) Commercialization of R&D outcome.

NALCO has set up an advanced research and development hub, the "NALCO Research and Technology Center (NRTC)," in Bhubaneswar. This center is dedicated to achieving distinction in research related to bauxite, alumina, aluminium, power, and other associated fields, both domestically and globally. The company has partnered with well-known national and international organizations and institutes for its research and development endeavors. Few of the notable R&D projects of the Company are mentioned below:

Energy reduction initiatives

- Implementation of slotted anode technology in potline
- Improvement in oxidation behavior of anodes
- Technical co-development of AP2XN Low energy cells in pot lines

Waste Utilisation and Environment protection

- Defluoridation plant using Emrion nano technology - A first of its kind defluoridation process based

on nano-technology to decontaminate the effluent water of Smelter.

- Treatment and utilisation of carbon portion of Spent Pot lining
- Recovery of Alumina and REE from Flyash
- Geopolymer Concrete from red mud and Fly Ash

New Products:

- Development and commercialization of High Speed Extrusion Alloy billets
- Strontium modified 6XXX series Aluminium Billet
- Development of bauxite certified material in collaboration with BARC

Environmental sustainability Initiatives:

As a responsible Mining & Metal Company, NALCO has taken significant initiatives to protect the environment. NALCO has implemented international management system standards like ISO 14001 (Environment Management System) and ISO 50001 (Energy Management System) to monitor, control

and mitigate its impact on environment through continuous improvement activities.

The major initiatives taken by the Company to protect the environment along the Aluminium production process are detailed below:

1. Bauxite Mining: NALCO employs sustainable mining practices and the Panchpatmali mines of NALCO has been rated as a 5 star mines as per the sustainable development framework developed by Ministry of Mines. The company actively engages in the reclamation and rehabilitation of depleted mining areas through afforestation, contributing to the ecological restoration.

2. Reduction in Co2 emission in its processes: The Company has taken numerous energy conservation initiatives in its Alumina Refinery and Aluminium Smelting and Power generation activities to reduce its GHG emission intensity.

3. Maximising CO2 absorption: The Company has undertaken extensive and ongoing afforestation efforts near its production sites and residential areas to establish a carbon sink. To date, the company has planted over 11 million trees to enhance the absorption of CO2.

4. Renewable energy: To harness the power of renewable energy and to reduce the Company's carbon footprint, the Company has commissioned 4 wind power plants of total 198 MW capacity in different locations of the Country. The Company has also utilised the rooftop space at its offices and units and set up 850 kwp of rooftop solar capacity.

5. Water conservation measures: A one-of-a-kind, nano technology based defluoridation plant is commissioned at the Smelter plant of NALCO to significantly reduce fluoride content in the effluent water.

All operating units have adopted Zero Discharge scheme (industrial waste water & sewage).

6. Emission control: Elaborate measures have been taken like ESP, Fume treatment centres, Bag filters and de-dusting systems to control the air emission within norms.

7. Waste disposal & reutilisation: All the solid waste generated from the process are handled and disposed as per statutory guidelines. There is increase emphasis on utilisation of solid waste to increase resource efficiency of the process.

Environment friendly Lean Slurry ash disposal system has been commissioned for better ash management.

NALCO emphasizes on its environment management activities which is a key pillar towards achievement of its sustainable development goals.

Effective Governance:

NALCO is committed to exemplary corporate governance, ensuring that ethical business conduct is deeply embedded in its daily operations. The company maintains a strong internal control system, ensures the regular and prompt dissemination of significant information to its stakeholders, and adheres to regulatory requirements in true letter and spirit, thereby reinforcing its long-standing practice of good governance. The Company submits self-evaluation

reports on its compliance to the Corporate Governance guidelines set forth by the Department of Public Enterprises (DPE) every quarter. The Company is rated 'Excellent' as per the self-appraisal report for the financial year 2022-23.

For governance and monitoring, online web-based applications such as capital expenditure monitoring, fund monitoring, compliance management system, bill tracking system, vigilance complaint management system, etc. are in place. These have resulted in timely monitoring and efficient management of capital expenditure, cash flow, statutory compliances and capital proposals.

Corporate Social Responsibility (CSR):

With a heritage spanning over 40 years, NALCO consistently strives to attain sustainable progress in economic, social, and environmental spheres, focusing on the quintessential elements of sustainability: people, planet, prosperity, partnership, and peace. The company's core emphasis has always been on fostering inclusive growth through extensive and holistic initiatives.

As NALCO ascends the heights of success, it has diligently worked to make a meaningful impact on socio-economic progress within its areas of operation through compassionate Corporate Social Responsibility (CSR) initiatives. Efforts such as rehabilitating displaced families, creating jobs, fostering income opportunities, improving healthcare and sanitation, advancing education and skills, ensuring access to

clean drinking water, developing infrastructure, managing pollution, taking environmental actions, supporting rural development, and nurturing arts, crafts, and culture, along with various philanthropic missions, have earned NALCO a place of pride in the corporate realm.

The Company has embarked on numerous significant projects aimed at enhancing the quality of life in surrounding communities and contributing to National development. A prime example is the Indradhanush program, which has seen the company sponsor the education of over a thousand tribal children from the Maoist-affected area of Damanjodi, enrolling them in three prestigious boarding schools. Under the 'Nalco ki Ladli' initiative, which aligns with the government's 'Beti Bachao, Beti Padhao' campaign, the company provides financial support to outstanding girls from BPL families in the Angul and Damanjodi sectors.

NALCO has entered into a Memorandum of Understanding (MOU) with the National Skill Development Corporation (NSDC) to offer skill development training to the local youth aligning with the Qualifying

Packs (QP) established by the Skill Council for Mining Sector (SCMS) and includes the enhancement of workers' skills through Recognition of Prior Learning (RPL). The Company also provides skill training in various sectors such as retail, healthcare, beauty and wellness, banking, tourism, and hospitality to the local youth in its operational areas, preparing them for employment in these industries.

Through Self-Help Groups (SHGs), women are provided opportunities for skill development, access to resources, and support to engage in various livelihood activities, like farming, agriculture-related products, fisheries, and tailoring. These initiatives significantly boost their financial autonomy and self-sufficiency. Acknowledging the importance of healthcare, NALCO runs eight **Mobile Health Units** (MHUs) and an outpatient department (OPD) in the villages surrounding its plants, providing medical treatment to over 100,000 patients annually.

In response to the Government of India initiative, NALCO has been an active participant in the **Swachh Bharat Abhiyan**. The

company has contributed by building toilets across different districts within its operational zones and has successfully achieved the status of Open Defecation Free (ODF) for 11 peripheral villages in the Damanjodi and Angul sectors.

NALCO has taken the responsibility of Shri Jagannath Temple, Puri & its surrounding under PM's Iconic Shrine Development Programme to upgrade the infrastructure & maintain cleanliness. The Company has given special emphasis on Renovation and beautification of Gandhi Park as a tourist spot, temple illumination, beautification of Puri town with thematic painting based on Jagannatha culture, operation of Battery-Operated Vehicle from Jagannath Ballav Math to Shree Jagannath Temple, Railway Station for differently-abled passengers, senior citizens & sick people, RO based water posts at different locations in side Puri Town. Through comprehensive endeavors, the company has not only advanced in its journey of business expansion but has also fostered a positive atmosphere among the local community and significantly enhanced its reputation within the aluminium industry. ■



NBCC's Achievement and efforts towards laying foundation for the vision of "Viksit Bharat in 2047"



An extended construction and real estate arm of Government of India under the Ministry of Housing and Urban Affairs (MoHUA), NBCC (India) Limited has been playing a pivotal role in the infrastructure development of the country for over six decades. With a rich legacy of excellence in construction and project management, the Navarna CPSE has consistently delivered projects of the highest quality and standards. The company's achievements play a crucial role in laying the foundation for a developed India by 2047, aligning with the Government's vision of a prosperous and sustainable Nation.

NBCC has been actively involved in the execution of a diverse range of projects, including government buildings, residential complexes, hospitals, educational institutions, and infrastructure development. The completion of projects within stipulated timelines is crucial, and NBCC has consistently met or exceeded project delivery deadlines, showcasing its efficiency and commitment to quality construction.

In an effort towards completing various projects leading to infrastructure growth and sustainable development in the country, NBCC has successfully

completed many buildings and projects of national and international importance. The company since its inception has emerged as the undisputed leader in the Construction Sector on the back of its capabilities, innovative approach, adherence to highest standard of quality, timely delivery and a dedicated workforce. During the last five years, NBCC has completed almost 135 projects with over 250 projects under various stages of execution.

NBCC's subsidiaries are also involved in the national development mission. Hospital Services Consultancy Corporation Limited (HSCL) aims to specialize in works of health sector while Hindustan Steelworks Construction Limited (HSCL) business activities lead avenues in the steel vertical. NBCC Services Limited (NSL) provides post construction maintenance services to the clients.

ACHIEVEMENTS TOWARDS NATIONAL INFRASTRUCTURE DEVELOPMENT

Contribution to India's Presidency of G20 Summit 2023

The Government of India

successfully assumed the Presidency of G20 Summit under the leadership of Hon'ble Prime Minister of India. NBCC had the proud privilege of constructing The International Exhibition-cum-Convention Centre (IECC), better known as "Bharat Mandapam", which was the venue of the G20 Summit. This historic venue stands as India's largest hub for Meetings, Incentives, Conferences, and Exhibitions (MICE). This Convention Centre, a marvel valued at around ₹2,700 Crore, offers seating for 3,000 individuals.

Hon'ble Prime Minister of India, Shri Narendra Modi inaugurated this venue on 26th of July, 2023. Equipped with cutting-edge amenities such as a convention centre, exhibition halls, and an amphitheater, Bharat Mandapam showcases India's commitment to hosting world-class events.

NBCC's construction of Bharat Mandapam is a major infrastructure development project that will help to boost India's economy and position it as a global leader. It is a symbol of India's growing economic and technological prowess. Throughout the summit, Bharat Mandapam served as a platform to exhibit India's vibrant and diverse culture to global leaders and delegates.

Redevelopment: The New Buzz in Urban Development

NBCC has been a pioneer in bringing and successfully implementing the Redevelopment Model. In view of shortage of housing/land monetization/restrained budgetary support, a unique self-revenue generating model to redevelop the existing old dilapidated Govt. colonies and properties was taken up by NBCC which is a self-sustaining model. It is grateful to the government which reposed its faith on NBCC to implement this model. Redevelopment of GPRA colonies is one of prestigious project of MoHUA where NBCC is building houses for Govt. employees without any burden on Government exchequer.

As a part of re-development, NBCC under MoHUA is building Delhi's World Trade Centre situated in Nauroji Nagar, which is one of the largest commercial hubs with modern facilities and amenities and this project. This state-of-the-art building shall be a hub for Private as well as Government offices in the heart of the National Capital.

Restoring the Faith of Home Buyers

For our country of over 1.4 billion population, the dream of owning a house is pursued by most of us and on becoming a reality marks an important milestone in our lives. In this context, few names have garnered as much attention as Amrapali Project. NBCC (India) Limited took over the stalled Amrapali Group projects spread over Delhi NCR with the aim of completing and delivering them to thousands of homebuyers

who had been left in a lurch. This mammoth task and responsibility given by The Hon'ble Supreme Court of India to NBCC (India) Limited.

Since taking over, NBCC played a pivotal role in coordinating with various legal authorities, facilitating the resolution of disputes, and ensuring compliance with court directives. This decision of reposing faith in the capabilities of NBCC marked a turning point in the Indian Real estate sector, where a government entity was entrusted with reviving and completing a private developer's projects. Despite facing challenges including quality of unfinished construction, financial constraints, incomplete documentation, legal disputes etc., NBCC has been executing the project and has been delivering units to the home buyers. NBCC remains committed to fully complete all components of the project and fulfills the dreams of thousands of home owners.

Building projects of National Importance across sectors

NBCC has had the privilege of contributing to the development and progress of many key sectors including health, education and other key sectors. Many institutions of repute like IIMs, AIIMS, IITs, NITs, have been built by the NBCC and its subsidiaries. With perfect execution and global standards, it is ensured that the users of these institutions of repute provide their world class services to the people of this Nation.

NBCC has also ventured into taking up irrigation works. The

company has done exemplary works in Vidharbha region of Maharashtra wherein irrigation work taken up and completed in spite of major challenges including land acquisition etc. The project has led to smiles in the faces of thousands of farmers who have benefitted from the project.

Contribution in Defence & Border Infrastructure

NBCC salutes the defense forces for their service to the Nation. In its own efforts to lend a hand towards the defense sector, the company has been doing extensive border fencing and road work. The company had taken up the crucial Indo-Pak border fencing work of 120 Kms and 75 Kms link road and has completed the same. The company has also done similar work on the Indo-Bangladesh Border (IBB).

Promoting Local, Going Global

NBCC ventured into Overseas Operations in the year 1977, executing projects of diverse nature in countries such as Libya, Iraq, Yemen, Nepal, Maldives, Mauritius, Turkey, Botswana. The company is actively working in various countries around the world and earning consistent revenue.

The company has recently completed world class projects like the New Supreme Court Building, Mauritius, Mahatma Gandhi Convention Centre (MGCC) at Niger. Among others NBCC is executing overseas project of construction of 2000 Social Housing Units at Hulhumale, Republic of Maldives.

NBCC also constructed the India Pavilion at Expo 2020 Dubai. The India Pavilion at Expo 2020 Dubai was one of the biggest platforms that showcased India to the world and projected the country as the next hub for growth and innovation. The pavilion will be focused on 11 primary themes - Climate and Biodiversity, Space, Urban and Rural Development, Tolerance and Inclusivity, Golden Jubilee, Knowledge and Learning, Travel and Connectivity, Global Goals, Health and Wellness, Food Agriculture and Livelihoods, and Water. This pavilion gave an opportunity to global visitors to explore and experience India's strengths and achievements in all its glory.

The company believes that apart from the benefits of business operation, it acts as an ambassador of goodwill for the country in the various nations it has presence. The company is an instrument of fostering international relationships, humanitarian growth exchange of knowledge and other key aspects in contributing to symbiotic relationships between countries.

Contribution towards Net Zero Emissions by promoting Green Buildings

India, at the 26th session of the United Nations Framework Convention on Climate Change (COP 26) in 2021, announced its target to achieve net zero by 2070. Hon'ble Prime Minister is a strong advocate of reducing carbon foot prints. NBCC understands the importance of the country's commitment and thus has been at the forefront of sustainable

construction practices, integrating green building initiatives into its projects. The incorporation of environmentally friendly practices and the pursuit of certifications such as LEED and GRIHA underline NBCC's dedication to building a sustainable future.

The completion of green-certified projects underscores the company's commitment to environmental responsibility. A shining example in this context is the NBCC built New Moti Bagh Complex, New Delhi, which is a great example of sustainability and green building.

Boosting Employment Generation and Skill Development

The construction sector is a manpower intensive industry. With increased urbanization there is increased requirement of manpower. NBCC's initiatives have led to significant employment generation, contributing to the vision of a skilled and empowered workforce.

The company's focus on skill development programs ensures that the workforce is equipped with the necessary skills to contribute effectively to the Nation's growth. On an average, NBCC generates employment of 15 million man days for construction workers.

Apart from direct and indirect employment the company recently, has skilled around 6000 workers of the company.

Other Initiatives and Activities

In its pursuit of Viksit Bharat, NBCC has extended its

commitment beyond business operations to corporate social responsibility. The company's CSR initiatives, spanning education, healthcare, skill development, and environmental conservation, have made a positive impact on communities across the Nation.

NBCC has also worked towards Renovation, Rejuvenation of various Heritage sites across the country including the development of art and sound works. The company has worked at historical sites like Jallianwala Bagh, Amritsar, Purana Qila, Qutab Minar etc.

NBCC'S EFFORTS TOWARDS NATIONAL INFRASTRUCTURE DEVELOPMENT

As the company continues to navigate challenges and explore new avenues, its dedication to Nation-building remains unwavering. The company considers itself as a key player in India's journey towards becoming a developed and sustainable Nation by 2047.

Strong focus on execution of projects

The company is strongly focused in executing its projects by adhering to timelines and avoiding cost escalations. With an order book of more than Rs. 55,000 Crores, and many projects in the pipeline there are constant efforts to continue this growth trajectory to add to the growth engine of the Nation.

Strengthening the Redevelopment Model

The redevelopment model

adopted by NBCC has been successful and it is the company's firm belief that the model should be adopted across the country. Keeping in view India's growing real estate sector, driven by rapid urbanization, the scope of adopting the redevelopment model in large cities is immense. With a growing population and increasing economy this model is a win-win situation for all stakeholders engaged in the development saga of the country. For example, NBCC is taking up work on old buildings under the redevelopment scheme and reconstructing them with modern technologies and facilities. In Delhi, NBCC is constructing DownTown Sarojini Nagar and residential spaces under this scheme.

Consolidating Residential and Commercial Real Estate Ventures

NBCC has executed various real estate projects in Bhubaneswar, Gurugram etc. which attracted a great response. NBCC is now coming up with new residential projects in Jaipur, Alwar and Coimbatore.

The commercial real estate segment, including office spaces, retail, and industrial properties, has witnessed significant growth. NBCC, in line with this, is executing the World Trade Centre New Delhi, a world-class

commercial hub with all the modern amenities. NBCC has sold over 70% of inventory, and possession will start soon. Many big MNCs are making WTC their new address.

Focusing on Smart Cities

Cities of India now accommodate almost a third of the country's population and the population in urban areas is expected to only grow. These facts shall be the truth in the foreseeable future, hence, comprehensive development of physical, institutional, social and economic infrastructure is crucial. Development of Smart Cities as an initiative by the government is a step in that direction.

Smart Cities shall promote the development of core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment. NBCC is actively participating in such activities with Smart cities. NBCC has already secured works of Puducherry and Aligarh Smart Cities, and the Company is looking to expand its presence in this sector. The projects undertaken by NBCC, from smart city initiatives to large-scale urban development projects, are strategically designed to contribute to India's economic growth.

NBCC's involvement in urban planning and the development of smart cities is pivotal in creating

sustainable and technologically advanced urban centers. The integration of smart technologies in city planning enhances efficiency, reduces environmental impact, and improves overall quality of life, aligning with the vision for Viksit Bharat.

In this era of globalization, it is important to maintain and fosters international relationships. India is now being widely acknowledged as a global power under the leadership of its Hon'ble Prime Minister. Continuing with its growth strategy, the company is focusing on getting into operations in various countries. NBCC has already executed projects in several countries like Maldives, Mauritius, Niger etc., and is exploring new opportunities in Jeddah, Zambia, Guinea and other countries of Africa.

Such efforts shall not only bring in important foreign exchange but also cement India's reputation as a provider of manpower, technology and a builder of relationships. The country's philosophy of Vasudhaiva Kutumbakam is being the focus of the company's well, wherein the company acts in building long term associations with its business partners and clients across the globe. The company shall continue to persevere in enhancing the reputation of Bharat across nations. ■

NMDC 2.0 For Viksit Bharat



India is on a transformative journey that entails a profound commitment to economic growth, sustainable development, social progress and good governance; the journey towards becoming a developed nation by 2047; towards the vision of a *Viksit Bharat*!

The great stakes and sanctities of public sector companies in this journey cannot be overstated. Essential services, employment opportunities, regional development and a steady contribution to the national treasure are the bedrock of India's growth story. Going forward, infrastructure and innovation that PSEs build and bring will play a defining role in realizing the dreams of the country.

India is the fastest growing economy in the world with a growth of 7.5% in FY24, as per the World Bank statistics. The country's appetite for iron ore is at a historic high. Steel is a hot commodity in Infrastructure,

Construction, Capital Goods, Automobiles, Consumer Durables among other sectors. The National Steel Policy plans to take India's steelmaking capacity to 300 million tonnes by 2030 for which around 450 million tonnes of iron ore is required. The thriving future envisions ~ 500 million tonnes crude steel capacity and ~ 575 million tonnes iron ore production by 2047, towards becoming the iron and steel powerhouse of the world.

In its standing as the largest iron ore producer of India, NMDC is committed to produce around 20-25% of the country's requirement and ensure a steady supply of raw material for nation building.

The Navratna public sector company stands out for its extensive reservoirs of high-quality iron ore, mining expertise spanning over six generations, and a solid financial footing. NMDC's partnership with the Steel Industry has been the cornerstone of India's industrial

progress and will continue to shape the future. Gearing up to play its part in the country's journey to *Atmanirbhar* Steel, NMDC is ramping up capacities towards 100 million tonnes by 2030 while making a vow to Responsible Mining.

In realizing its vision to emerge as a global mining company, one that only meets the needs of the present but also safeguards the needs of the future generations, NMDC will be a mighty force in building an Indian economy that is strong, resilient and sustainable.

45 Million Tonnes Strong in FY24

In the depths of the mines, we unearth more than minerals; we unearth possibilities. Each tonne of ore extracted carries with it the promise of bridges, skyscrapers, and railways - the very sinews of civilization. Surpassing the 45 million tonne production and dispatch mark in FY24, NMDC



continued to deliver historic volumes and forge mineral security.

Transforming to NMDC 2.0, the PSE has navigated the rigors of the industry, built upon its technical and digital strength, fortified its financial resilience, and worked tirelessly.

NMDC is the first mining company in the country to cross the 40 million tonne mark three times in a row. The company delivered unprecedented volumes in FY24, producing and selling around 45 million tonnes of iron ore in the financial year. Proving its mettle as the nation's Navratna, NMDC achieved a 10% growth in production and 16% growth in sales compared to FY23 volumes. The industry leader achieved its best ever yearly physical performance, inspiring confidence in the future of India's iron and steel economy.

With strategic agility towards capacity building, NMDC also outperformed in CAPEX with an expenditure of Rs. 2,014 crores against the target of Rs. 1,769 crores in FY24, which is up by 14% against the target.

In NMDC's journey, FY24 shall be etched in memory for its glorious achievements - the commissioning of NMDC Steel

Limited, mining gold in foreign land, setting the tradition of celebrating its workforce, renewing its commitment to ESG, and reinventing its identity with a new logo - a homage to Responsible Mining.

Responsibility towards the communities, the environment, the industry and India. NMDC's goal is to mine sustainably, restore ecosystems, invest in social initiatives, and meet the country's thriving demand for iron and steel. The compass points north - toward innovation, sustainability, shared purpose and a 100 million tonnes strong future.

Sustainable | Scientific | Spreading Smiles

Committed to achieving India's net zero emission target, NMDC is at the forefront of Responsible Mining in the country, leading the revolution of the mining industry towards sustainable practices. NMDC mines are fully mechanized with operations that ensure a conscious and efficient use of resources. Through environment friendly practices and smart mine planning, the NMDC complexes have earned 5 Star Ratings by the Indian Bureau of Mines, Government of India.

Reinventing the business with cutting-edge technology, NMDC has minimized energy consumption and maximized resource efficiency. The PSE conscientiously monitors greenhouse gas (GHG) emissions and energy consumption, which has enabled a reduction of the total per tonne GHG emission intensity by 24% in the last decade. With strategic investment in technology and renewable energy for a greener future, they are devoted to meet the Sustainable Development Goals set for the industry.

NMDC has been mining in remote areas of Chhattisgarh and Karnataka since the early 1960's. They have brought hospitals, schools, and employment opportunities to some of the remotest regions of India, winning an earnest social license. NMDC is contributing to the social and economic growth, cultural and environmental preservation, and a better and brighter future for those living around its mines.

NMDC's CSR is a thoughtful investment in initiatives that can bring a purposeful and lasting impact. Its social initiatives are combating maternal mortality and malnutrition, creating sustainable livelihood opportunities for tribal youth,



and building infrastructure that ensures education and healthcare for all.

Towards Industry 4.0

In early 2021, NMDC was the first public sector company in India to go live on the SAP S4-HANA platform for resource planning. Progressing on the digital roadmap, technology has revolutionized the way NMDC operates. A seamless integration from mine exploration to data analysis and interpretation, development and operation, and finally mine closure with information traveling from the Pit to Boardroom in real-time has enabled timely and effective decision-making.

Automation in mine planning, plant and machinery maintenance, capturing of production and dispatch data are definite means to enhance efficiency. While data collection at source for statutory compliances and an easy retrieval of history of events to develop AI/ML models for predicting vulnerable location, equipment and personnel is reinforcing the commitment to 'Safety First'.

A groundbreaking outcome of building a robust digital infrastructure is that NMDC has access to the big picture at all points of time. This visibility of the company's overall performance inspires its future expansion plans while the experiences and learnings that come along gives it the confidence to take the leap of faith towards ambitious projects and new ventures.

Intelligent equipment like the Fleet Management System, Rapid Wagon Loading System, Mine Transport Surveillance System, Vision Enhancement and Drones

for exploration are building a more efficient and responsible industry as NMDC holds the digital baton for the domestic iron and steel sector.

Mineral and Geographical Footprints

Towards building resilience and reducing import dependency on critical minerals, NMDC is investing in diversification and expanding its mineral and geographical footprint. In a watershed moment for company history, NMDC commenced Gold Mining at Mount Celia in Australia in FY24.

The public sector company has also signed a Joint Venture agreement to unlock the potential of magnetite resources at Mount Beven and explore minerals of strategic interest like Lithium in Australia. Focussed on Lithium, Copper, Gold, Cobalt, Nickel, Iron Ore and Coking Coal, NMDC is making headways in Africa, Australia, South East Asia and South America.

They are diligently assessing opportunities in foreign geographies while prioritizing lucrative and sustainable prospects. NMDC's progress in this endeavor is being led by its subsidiary, Legacy Iron Ore Limited which has exploration tenements of iron ore, gold, nickel, base metals, and tungsten in Australia.

Environment, Social and Governance Practices

NMDC duly complies to the international ESG Reporting Frameworks and engages in third party evaluations and ratings with industry peers. The

PSE is integrating the valuable feedback from stakeholders into its ESG practices, aligning them with its vision to become a global environment friendly mining company with a positive thrust on social development.

Outlining Key Performance Indicators to assess the progress and efficacy of ESG initiatives, they are evaluating carbon emissions, water consumption, community engagement, employee well-being, safety records and vigilance structures within. At NMDC, ESG principles are seamlessly woven into the fabric of the company's overall business goals, central to decision making, risk management, strategic investment and future planning.

NMDC 2.0 for Viksit Bharat@2047

To and beyond 100 million tonnes, NMDC is striving to meet a quarter of the country's demand for iron ore while investing in net zero technologies for a strong and sustainable industry. The Navratna is aiming for diversification in its mineral portfolio to address the import dependency of the nation, saving foreign exchange and export bulk minerals, realizing foreign exchange towards achieving the dream of self reliance in the mining sector at home. Consistent innovation in the entire supply chain in line with the evolving industrial policy envisions greater productivity, efficiency, and safety, towards the culture of Responsible Mining.

One of India's most respected and dependable public sector companies, NMDC is transforming for a Viksit Bharat! ■

Role of Indian Aviation in realising Viksit Bharat@2047

Envisioning India's Flight to the Future



India, with its 1.4 billion people, is home to the world's fastest-growing air passenger market and is poised to become the world's third-largest aviation market in near future. The Government is tapping into its unexplored potential by creating capacities, removing bottlenecks, simplifying procedures. This not only includes building new airports and expanding existing ones but also by becoming world's largest aircraft procurer after the US and China shaping the aspiring future of Indian Aviation.

During the six-year period from 2014-15 to 2019-20, Indian airports witnessed robust double-digit Compound Annual Growth Rate (CAGR) of 12.4% in terms of total passenger traffic. Post-Covid, Indian aviation industry is again on the growth trajectory and the total passenger traffic has recovered remarkably and have gone past pre-Covid levels in FY 2023-24. Aviation sector is one of the key drivers of economic development and it presents significant economic and social benefits facilitating tourism, trade and connectivity, fostering economic growth, generates jobs, and provide a lifeline for remote communities and enable a rapid response during unprecedented situations, which is symbolized

by 3As: Accessibility, Availability and Affordability.

The Airports Authority of India (AAI), being the sole Air Navigation Service Provider (ANSP) and largest Airport operator in the country has taken firm steps towards developing new airports and expanding existing airport infrastructure, while also bringing in advancements in Air Navigation Services for ensuring safer air travel. In FY 2023-24, AAI operationalized 20 key airport infrastructure projects in the country which includes the development of new Greenfield International Airport at Rajkot in Gujarat and new airports in Uttar Pradesh namely Ayodhya, Aligarh, Shravasti, Chitrakoot, Azamgarh & Moradabad and New Terminal Buildings at Chennai, Port Blair, Surat, Trichy, Kanpur, Tezu, Pune, Gwalior, Kolhapur, Jabalpur, Adampur & Dehradun and CARO building in Hyderabad while Foundation stones were laid for New Terminal Buildings of Jammu, Kadapa, Hubballi, Belagavi, Udaipur, Jodhpur and Datia, Rajahmundry airports. This year marks another achievement as AAI have finalized master plans for more than 100 airports upto year 2050 with focus on seamless and future expansion. These

master plans of AAI airports are the result of the consistent efforts of large number of officers, engineers & technocrats over a considerable period. Master plans estimate passenger growth and envisage development of airports in phases with projected land requirement.

Airports Authority of India has committed to infrastructure development and more than 40 projects were inaugurated in the last 10 years including construction of greenfield airports, new terminal construction, extension and modification, runway and apron strengthening, air navigation services, technical buildings, etc. AAI and other Airport Developers have targeted a capital outlay of more than Rs. 90,000 Crore in the airport sector in the next five years. In the FY 2023-24 alone, AAI utilized more than Rs.5200 Crore as record capital expenditure to build new airports, expand existing airports, upgrade facilities and embrace latest technologies.

The Airports Authority of India has planned and operationalized some of the most iconic airports of in record time frame. The construction of Ayodhya Airport was completed in 20 months whereas Gwalior Airport project was completed in 16 month

reflects AAI's concerted efforts to serve the nation and make the vision of 'Viksit Bharat', a laudable model to be followed globally.

The Regional Connectivity Scheme – UDAN launched in 2016 has revolutionized creation of modern airport infrastructure in the hinterlands of India, enabling last-mile connectivity through the revival of the existing airstrips and airport infrastructure, bringing essential air travel access to underserved and unserved regions, boosting regional economic development. AAI has been the key catalyst in successful implementation of UDAN.

The creation of substantial world class airport infrastructure combined with the right set of innovations in design and technology has improved operating efficiency and passenger experience by leaps and bounds. In an attempt to enhance the travelers' overall experience, AAI's new airport terminal buildings are creating a sense of place with a unique combination of environmental characteristics designed to connect passengers to the airport as well as its distinctive geographic location and culture. Be it the famed Bhavani Mandap of Kolhapur, Man-Mandir Palace of Gwalior, Warli Art at Pune Airport or the Gond Art inside Jabalpur Terminal, AAI Airports give an immersive art experience to the passengers while giving a glimpse of the region's or the city's rich heritage.

Strengthening the 'Aatmanirbhar Bharat' initiative of Government of India, AAI indigenously developed the Air Traffic

Management Automation System (ATAMS) at Bhubaneswar Airport, providing enhanced safety and efficiency in flight handling while reducing foreign dependency and capital outflow. Airports Authority of India has also joined hands with Indian Space Research Organisation (ISRO) for indigenous development of space-based ADS-B surveillance system by leveraging on the ISRO's capability on satellite technology and AAI's expertise on the provision of air navigation services to augment surveillance coverage over oceanic airspace to support and strengthen safe Air Traffic services. This also opens avenues for AAI and ISRO together to gain from business potential of space-based ADS-B by extending our coverage to neighboring countries.

The exponentially rising civil aviation industry, also presents a strong case for the development of the Maintenance, Repair and Overhaul (MRO) industry in India. Although at a nascent stage, the rising consumer demand, increasing fleet size, favorable policy interventions are fueling the growth and development of MRO Industry in India, thus strengthening the "Aatmanirbhar Bharat" initiative of Government of India. The benefits would potentially include reduction in foreign exchange outflow, greater employment opportunities, augmentation of domestic MRO capability and reduced turnaround time for airlines/carriers.

Further, significant progress has been made in establishing Flying Training Organization (FTOs) to address the increasing

demand for commercial pilots in our country. In the year 2023-24, FTO sites were operationalized at Khajuraho, Jalgaon, Salem & Bhavnagar and land were allocated for establishment of FTO, one each at Kanpur, Hubli, Pondicherry, Kolhapur, Donyi Polo, Solapur, Satna, Juhu, Rewa, Behala and Vellore Airport.

Indian Aviation is also placing a very strong emphasis on sustainability. Ministry of Civil Aviation is encouraging new Greenfield airports, to prioritize carbon neutrality and net zero emissions in the modern airport infrastructure development plans. This year, AAI also renewed the emphasis on sustainable development by devising a roadmap towards realizing India's updated 2030 Nationally Determined Contributions (NDC) on climate change. SUGAM is the first such effort taken this year, showcasing the sustainability initiatives taken at AAI airports, encouraging other airports to learn from AAI's experiences. As on date, a total of 67 AAI Airports are running on 100% green energy and remaining are expected to be covered by December, 2024.

Technology continues to redefine how the Civil Aviation sector operates, and AAI is committed to embracing innovation and digitalization to stay ahead of the curve. To upgrade and enhance the Research and Development (R&D) activities in the civil aviation sector, Airports Authority of India, has also set up the Civil Aviation Research Organization (CARO) in Hyderabad. CARO in collaboration with Industry, Educational and Research Institutions and embracing

the make-in-India concept will propel AAI and country's civil aviation sector to emerge as a self-reliant global leader in providing solutions and fostering the overall growth of Industry, Aviation and Economy.

AAI is expeditiously laying the roadmap for expanding existing airports and development of new airports. With the aircraft orders over 1200 nos. from Indian carriers, Air traffic, airports and fleet size are expected to grow at a double-digit growth annually in years to come. Domestic passenger traffic is expected to surge to 350 million by 2030, from 152 million in 2023, while

international travelers is expected to grow to 160 million. Indian Airports should be equipped to cater to this demand.

India will become the most exciting civil aviation market in the coming years on a global level due to robust investments in airport infrastructure.

Besides bringing more cities, especially tier II and III, on the aviation map, the emphasis has also been on creating more capacities in the metropolitan cities since they are key to functioning of the hub and spoke model.

As the industry propels itself into the future, the focus on

infrastructure, skilled workforce development, and vigilant oversight ensures that the soaring ambitions of India's aviation sector are not only met but surpassed. The stage is set for a brighter and more connected future in the skies.

India's Civil Aviation sector has reaffirmed the country's position as an exponentially growing aviation market while marching proudly towards the vision of 'Viksit Bharat @ 2047'. The skies are the limit as the industry continues to spread its wings and elevate to greater heights and AAI is set to play the pivotal role in this growth story. ■

Innovative and intrapreneurial culture driving growth



बामर लॉरी एण्ड कं. लिमिटेड
(भारत सरकार का एक उद्यम)
Balmer Lawrie & Co. Ltd.
(A Government of India Enterprise)

Hon'ble Prime Minister, Shri Narendra Modi said, "When India grows, the world grows, when India reforms, the world transforms." In his dream for 'Viksit Bharat', he sees the Indian economy rising further in leaps and bounds making the country a developed nation worth \$30 trillion economy by 2047. Today every citizen is aspiring for 'Viksit Bharat' and in these times while we celebrate the Public Sector Day in April, I believe every Public Sector Enterprise must take cognizance of its key contributions and chart out a roadmap towards building the 'India of Tomorrow'.

As the Chairman & Managing Director of Balmer Lawrie & Co. Ltd., a diverse Miniratna I PSE under the Ministry of Petroleum and Natural Gas, Government of India, I have been driving my company to leverage every opportunity towards becoming future ready and contributing to the development of the nation. Balmer Lawrie has a presence in both the Manufacturing and Services sectors. Amongst the various initiatives that we have been taking in the areas of Innovation, Research & Development, Skill Building, CSR, Environmental Sustainability and Effective Governance, I think

it is worthwhile mentioning some projects that align with the Government's vision, along with our CSR and Sustainable Development initiatives.

Innovation and Intrapreneurial culture driving the future of Balmer Lawrie Businesses

Balmer Lawrie is driving various projects across businesses that are intrapreneurial and will drive the future of the Company. Our Strategic Business Units (SBUs) diversified into projects that reflect an innovative culture. For example, SBU: Cold Chain, the Multi Modal Logistics Hub at Visakhapatnam and the currently the Free Trade Warehousing Zone project were offshoots of our Logistics Infrastructure business. The 3PL (Third Party Logistics) Project proposal has emerged from our Logistics Services business. Our Travel team has developed Self Booking Tool that automated ticketing for our esteemed customers and subsequently the Government of India ticketing portal that provides superior value to the Government of India employees for their official as well as personal travel needs. SBU: Chemicals has forayed into manufacturing Textile and Agro Chemicals

using the same indigenous technology that was being used to manufacture Leather Chemicals.

Visakhapatnam Port Logistics Park Limited (VPLPL)

Visakhapatnam Port Logistics Park Limited (VPLPL), the Joint Venture (JV) Company between Balmer Lawrie & Co. Ltd. (BL) and Visakhapatnam Port Trust (VPT) formed in 2014 has become a holistic integrated logistics park (CFS, Domestic cum custom bonded warehouse, temperature controlled warehouse, open yard for storage of domestic containers, railway movement, export movement) in line with PM's Gati Shakti initiative. The objective of building and operating this Multimodal Logistics Hub (MMLH) on a 53 acres land at Visakhapatnam was to provide end-to-end logistics solutions. The construction of MMLH was completed by March 2019 and the Container Freight Station commenced operations within the Hub in April last year. The MMLH has the capability to accommodate / handle both Exim and Domestic cargo. We are aware that the vision of the National Logistics Policy (NLP) is to build a technologically-enabled, integrated, cost-efficient,

resilient, sustainable and trusted logistics ecosystem in the country for accelerated and inclusive growth. VPLPL is in adherence to the vision of the NLP and occupies a significant position in the logistics landscape of the country. The CFS facility in VPLPL is spread over 25 acres and this is the only other facility in Visakhapatnam which has rail connectivity with the Port (other than CONCOR's facility). This is the only facility with refrigeration facility and has a huge potential for movement of refrigerated cargo as well.

Special Freight Train Operator (SFTO)

Balmer Lawrie being an integrated Logistics Services provider, foresees Rail Logistics as an area for growth and acknowledges the importance of Rail in the Logistics Services mix. It aims to achieve higher affordability and sustainability by focusing on this mode to provide customised logistics solutions. Balmer Lawrie's Strategic Plan - Vision 2030 emphasized Multi-Modal Logistics Hub, Temperature Controlled Warehouses, Private Freight Terminals, Third Party Logistics and Freight Train Operations (FTO) as the new business areas for future growth in Logistics. Moreover, the Indian Railways revised the Special Freight Train Operator (SFTO) scheme to liberalized SFTO scheme in 2020 so that Logistics service providers / manufacturers could invest in high capacity and special purpose wagons to transport specific commodity and tap to serve the above-mentioned sectors. Hence, to buttress its rail logistics initiatives, Balmer

Lawrie is exploring options to serve the CPSEs in steel, fertilizer, aluminium etc. sectors by providing specialised wagons and managing the end-to-end distribution of their products. In view of this, Balmer Lawrie signed a Memorandum of Understanding (MoU) with Braithwaite Co. Ltd. for a tie up in respect of procurement and supply of different types of railway wagons like Bogie Flat Steel Wagon (BFNS), General Purpose Wagons etc. including maintenance / repair of the wagons.

Free Trade Warehousing Zone (FTWZ)

In the services sector Balmer Lawrie is an end-to-end Logistics Solutions provider with a vision to becoming a market leader in the organised sector providing Integrated Logistics Services. The Company is setting up the Free Trade Warehousing Zone (FTWZ) at the JNPA SEZ in Mumbai on a area of around 15 acres. Balmer Lawrie would invest Rs 230 crore for the project. This is a step towards enhancing our Logistics portfolio to realise its vision of being an Integrated Logistics player. The FTWZ will have a Container Yard, General Warehouse, Temperature Controlled Warehouse, Hazardous Warehouse, Office Space, Custom Office Handling EXIM Cargo and other common facilities. The project will be developed in two phases, and the first phase is expected to be complete in the next two years followed by Phase 2. This state-of-the-art FTWZ will ensure sustainable growth while delivering value to customers

worldwide. This will also enable the Company to achieve its goal of diversifying into related business verticals in the logistics segment. The FTWZ will facilitate additional revenue generation for the organisation and foster employment opportunities in the region.

Cold Chain Logistics

Balmer Lawrie provides Cold Chain logistics solutions under the brand LOGICOLD. The Cold Chain Business Unit branched out from the Logistics Infrastructure business of the Company. Today, Balmer Lawrie has four major Cold Chain Units across the country and plans to set up mini Cold Chain Units in tier 2 and tier 3 cities. As part of this, a Cold Chain Unit is being set-up in Vijayawada. Balmer Lawrie has also signed Memorandum of Understanding (MOU) with Central Warehousing Corporation (CWC), a Miniratna I PSE under Ministry of Consumer Affairs, Food and Public Distribution, GOI for utilising storage / warehousing space of CWC for providing Cold Chain logistics, general warehousing and other ancillary services for a period of ten years from the date of sign off, 20th April 2023.

As part of the association, Balmer Lawrie and CWC will collaborate to leverage each other's capabilities and complement each other to provide best-in-class services to customers in keeping with the growing demands of the segment. The organisations would work together to strengthen and expand their foothold not only in Cold Chain logistics but also general warehousing and distribution

pan India. The association with CWC has given a fillip to Balmer Lawrie's Cold Chain Business Unit's aspiration of achieving Rs 100+ crore by 2027 and also setting up Mini Temperature Controlled Warehouses having a capacity of 1500 to 2000 pallet position in Tier II and Tier III cities across the country. This is indeed a noteworthy alliance that will address the supply gap in the Cold Chain logistics segment and will significantly contribute to the country's economy.

R&D in Lubricants and Chemicals

We have two R&D centres - the Application Research Development (ARL) dedicated to new product development of SBU: Greases & Lubricants and the Product Development Centre (PDC) for SBU: Chemicals. Both these R&D centres are recognised by Department of Scientific and Industrial Research (DSIR).

Applications Research Laboratory (ARL), Kolkata

Innovative R&D with continual technological upgradation to develop biodegradable and environment friendly products, meet the future market requirements and cater to customers' delight is the key objective of the Company. The modernized R&D Centre is well equipped with state-of-the-art test rigs / instruments and backed by highly qualified Scientists / Engineers. R&D projects were directed towards development of high performance grease for suspension bearings and Synthetic Gear Case Oil for Indian Railway for both diesel & electrical locomotives, High

Performance grease for Overhead Aluminum Electrical Conductors, Fire Resistant grease for Steel Plants, Long Life Multipurpose Grease for Automotive Sectors, Long Life High Temperature Wheel Bearing Grease for Auto OEM, Heavy Duty Diesel Engine Oil (CI4 Plus)& CK4 for Auto OEM, 'Keep Clean' Hydraulic Oil for Industrial OEM, High Performance Cutting Oils, High Performance Oils for Aluminum Wire Drawing and Machining Operations and Rust Preventive Oils for Steel Tubes & Pipes, High Performance Cold Rolling Oils for Mild and Stainless Steel, Bio-degradable Engine Oil and Transmission Oil for Automotive Sectors, development of infrastructure for in-house Ester Synthesis. ARL has to its credit a total of fifteen patents, and many research papers were presented in conferences.

Product Development Centre

For Research and Development on chemicals related to leather, Textiles and Agro chemicals, the Product Development Center at Manali, Chennai has a team of qualified researchers who are constantly working on developing new age of chemicals in the above chosen areas. Our thrust is not only to develop import substitutes for the leather processing industry but also to develop greener and environment friendly products. The products comply to REACH (Registration Evaluation and Authorization of chemicals) norms of Europe. This Centre has a strong association with all leading technical institutes like CLRI, IICT, IISC, ICT Mumbai and IIT Chennai.

A total of seven Indian patents for products have been filed from this centre. Many technical papers have been published in international journals and have been presented in conferences. We have taken many initiatives in process improvements and one of the approaches in association with ICT, Mumbai has been recognized and awarded by Indian Chemical Council. We are entering into the product development of Textile Chemicals which we had taken up as a specially assigned future project.

Promoting Start-ups

In line with 'Startup India', a flagship initiative of the Government of India, Balmer Lawrie Start-Up Fund was launched in 2017 focused on nurturing innovation in chosen business areas. The scheme aims at fostering innovations which can be a game changer in the industry or be a significant value provider.

When Balmer Lawrie signed an MOU with IIM Calcutta Innovation Park on 14th September 2017, to provide seed funding of Rs 5 crore to incubate start-ups with innovative ideas, it became a flag bearer in the Eastern region for promoting the start-up ecosystem here. It is the first conglomerate to launch a Start-up Fund in the region under the aegis of Hon'ble Prime Minister's Start-up India initiative.

The journey of the Balmer Lawrie Start-up Fund has been pretty interesting. It included three rounds of Start-up hunts and incubating and supporting start-ups with innovative ideas. Though the ride till now has

been extremely successful, the company would continue to explore opportunities of taking it forward and sustaining it.

I am glad that the Balmer Lawrie Start-up Fund journey has been successful till date and we were able to fund selected start-ups in different areas like Kanpur Flowercycling Pvt. Ltd., a company that converts discarded flowers into innovative products like incense, natural soap and other bio-degradable products, RCHobbytech Solutions Pvt. Ltd.,

a company providing unmanned surveillance solutions, Flyzy, a start-up in B2B travel, Tight the Nut, a start-up providing garage and spare solutions and Origin Konnect, a Logistics based start-up.

Balmer Lawrie signed an MOU with IIM Lucknow Enterprise Incubation Centre (IIML EIC) on 6th February 2024 for incubation of Start-ups.

Presently, Balmer Lawrie and IIML EIC are collaboratively inviting applications for

the Corporate VC Startup Engagement Programme (CSEP).

Collaboration – need of the hour

To realise Hon'ble PM's dream of Viksit Bharat, it will be important for PSEs to collaborate and prep up for a future world. It will be our concerted efforts that will make India a global leader. I would like to conclude by quoting Henry Ford – "If everyone is moving forward together, then success takes care of itself." ■

The Cotton Corporation of India Limited: Contribution Towards Viksit Bharat@ 2047



Established on 31st July 1970 under the administrative control of the Ministry of Textiles, Government of India, CCI functions as a central nodal agency to undertake Minimum Support Price Operations for cotton to safeguard the economic interests of cotton farmers in the country. This initiative not only serves as a shield for cotton farmers, especially during times of market volatility, preventing exploitation and ensuring a remunerative prices to them. But also contributes significantly towards the vision of a prosperous and developed India, encapsulated in the term Viksit Bharat@2047. By safeguarding the economic interests of cotton farmers and promoting stability in the agricultural sector, CCI lays the foundation for a resilient and prosperous farming community.

Amidst the challenges posed by the global pandemic, CCI's role became even more pronounced when under the dynamic leadership of Honourable Union Minister of Textiles, Government of India, CCI has not only saved the farmers from distress sale but has also become the only organization in the entire globe which has procured more than 225 lakh bales under MSP operations and disbursed Rs.

62500 crore directly into the bank account of 45 lakh farmers.

With a view to maintaining its crucial role of safeguarding the interests of cotton farmers across the country, while at the same time ensuring a smooth supply of good-quality cotton to textile mills, CCI has established a comprehensive infrastructure. However, CCI's commitment to sustainability extends beyond its mandate. Through various initiatives under its Corporate Social Responsibility (CSR), CCI is actively involved in uplifting farmers' communities and fostering sustainable practices. From constructing toilets for girls in government schools and market yards to promoting contract farming and rainwater harvesting, the CCI's CSR initiatives touch upon various aspects of rural development, contributing to the holistic well-being of cotton-growing communities.

In its journey towards Viksit Bharat@2047, CCI recognizes the pivotal role of technology in driving progress and innovation. Leveraging digital platforms, data analytics & automation, the Corporation has modernized its operations, streamlining processes, and enhancing its efficiency. From real-time

market monitoring systems to sale of cotton & cotton seed through E-Auction platform, CCI harnesses technology to optimize resource allocation, minimize wastage, and improve decision-making. By embracing digitization and adopting cutting-edge solutions, CCI not only stays abreast of global trends but also fosters a culture of innovation within the Indian textile ecosystem. Highlights of CCI efforts to ensure more transparency and sustainability in its working are highlighted hereunder:

i) Cott Ally Mobile App: In a bid to revolutionize the cotton farming landscape, the Cotton Corporation of India Limited (CCI) has introduced a groundbreaking mobile application called Cott-ally. This innovative platform is in nine regional languages designed to provide cotton farmers with a comprehensive suite of tools and resources to increase awareness about Minimum Support Price (MSP) rates, best farm practices, nearest procurement centers of CCI. With its user-friendly interface and powerful features, Cott-ally has quickly become an indispensable companion for cotton farmers across India.

ii) CCI introduced a robust

system for on spot Aadhar based farmer registration and 100% payment directly in bank accounts of genuine cotton farmers through PFMS Portal. Corporation has on-boarded Cotton MSP scheme on DBT (Direct Benefit Transfer) Bharat Portal for making Aadhaar Authenticated Payments through Aadhaar Payment Bridge System (APBS) powered by NPCI (National Payment Corporation of India Ltd.)

iii) E-Auction platform: CCI offers good-quality cotton at competitive prices throughout the year at most competitive rates and terms to keep the wheels of domestic textile mills running. In order to make the sales system more transparent and market driven, 100% sales of lint cotton bales and cotton seeds are made through an independent e-auction portal managed by a PSU. Thus, CCI ensures the availability of raw cotton to the textile industry in a fair and transparent manner.

iv) Bale identification and traceability system (BITS): In order to ensure the traceability, quality, variety, origin place and other parameters of cotton procured by CCI to domestic and international buyers, CCI has developed "Bale Identification and Traceability System" (BITS) which is first in cotton supply.

With this system, textile industry may track the journey of each cotton bale right from the field to the final product i.e., where it was grown and how it was processed before reaching the end consumer. Thus, the integrity of the entire process to the highest standards of quality, ethics, and sustainability can be ensured.

v) Contribution to resolve sustainability issue in cotton sector: Awareness of sustainability and circularity issues, increase in yield and the need for change in the cotton industry, is currently the main focus of the Government of India. Various initiatives have been launched to tackle the significant social and environmental challenges faced by cotton farmers. In line with these efforts, CCI in association with ICAR-CICR has undertaken a pilot project for enhancing awareness and Best Farm Practices for Cotton Farmers to improve yield, quality and sustainability in all cotton growing states.

vi) Branding of Indian cotton: To encourage the Trade and Industry to work on the principle of self-regulation by owning complete responsibility of Traceability, Certification and Branding of Kasturi Cotton Bharat, MoU has been signed

between CCI on behalf of Govt. of India, Ministry of Textiles and TEXPROCIL on 15th December 2022. The introduction of the 'Kasturi Cotton Bharat' brand, with its end-to-end traceability using Blockchain technology, is a groundbreaking initiative, setting a new standard for transparency in the cotton textile value chain to uplift the valuation of Indian cotton and promote the rich textile heritage of India by combining traditional craftsmanship with a touch of luxury. CCI become the first in India produced Kasturi cotton lots.

As India marches towards its tryst with destiny in 2047, CCI remains committed to its mission of empowering cotton growers, embracing innovation, and fostering sustainable development of entire cotton and textile value chain. By staying true to its core values of integrity, transparency, and inclusivity, CCI continues to be a beacon of progress in India's journey towards prosperity and self-reliance in the global cotton arena. Together, with concerted efforts and unwavering determination, CCI will continue its support to weave a brighter future for generations to come, where every thread of the nation's fabric contributes to the tapestry of Viksit Bharat@2047. ■

GOA Shipyard – India’s key security partner - Scaling new heights in warship building



गोवा शिपयार्ड लिमिटेड
GOA SHIPYARD LTD

As a Defence Public Sector Undertaking, Goa Shipyard Limited has over the years, played a significant role, to meet the high end requirements of the Indian Navy and Coast Guard indigenously, in the specialized field of warship building. In the eventful six decades of its existence, the Shipyard has delivered more than 200 vessels that encompass a range of sophisticated and diverse classes of vessels which include over 40 vessels exported in the global market.

Performance

The Shipyard has grown at an astounding pace with superlative performance in all spheres. Phased modernisation of the Shipyard at a cost of approx Rs 1300 Cr has equipped shipyard with most advanced shipbuilding infrastructure for construction of steel and FRP ships. Riding on the modernisation wave and supported by decisive & disruptive leadership, **the Company has delivered record 43 ships in the last few years, amounting to 32000 gross tonnage, largest by any shipyard in the country.** These deliveries include 11 OPVs, 11 Fast Interceptor Boats, 04 x 1000 Ton fuel barges, 03 Ocean Going Tugs, 12 Fast Patrol Crafts for the Indian Army and

02 Damage Control Simulators. **The differentiating factor has been ‘before timely’ deliveries at ‘fixed costs’ of every project.** Reduction in ‘Build Period’ to almost half for the large OPVs delivered by GSL to multiple clients is a direct manifestation of improved efficiency and sharp execution improvements brought about in the shipyard in recent times. This has also translated into significant financial gains for the Company.

Exports

The Company’s **dominance in exports** is evident from 15 export deliveries made in the last ten years including 02 large OPVs to friendly foreign countries. The Shipyard is presently executing an export order for

a friendly foreign country and is proactively pursuing with various countries for further improving our performance in terms of exports. The Yard has also commenced export of soft skills in Shipbuilding design to our neighbours. Training courses in Shipbuilding technologies have been imparted for Friendly Foreign countries. Indeed, with its significant export track record, GSL's contribution has been remarkable and well acknowledged.

Technological Leap - Building for the Future

It is indeed the result of the perseverance and close knit GSL organization that this company has continuously managed to remain ahead of the curve. In





its endeavor to support the 'Make in India' initiative of the Government and achieve self-reliance, the Shipyard has chalked out a challenging path to take up technology and weapon intensive major import substitute projects, namely **Advanced Missile Frigates** being executed for the first time by GSL adding another strategic Shipbuilder to the nation with capability to construct such advanced platforms.

With respect to the Advanced Frigate project, Shipyard has taken on the responsibility to increase indigenization content significantly. It is planned to develop, fit and integrate 50 major equipment locally. Shipyard is already working with Navy and indigenous OEMs for the same. The Shipyard has also

collaborated with M/s Griffon Hover works Limited (GHL), UK to undertake **indigenous construction of Hovercrafts** at GSL, for requirements of Indian Coast Guard and Indian Army. GSL is presently constructing 20 Platforms with an order book of approx. Rs 18000 Crores. It is noteworthy that 17 of these platforms have been won through competitive bidding which speaks volumes about the GSL's professionalism and efficiency.

Apart from above major import substitute projects, the Shipyard has been on the forefront of adapting and bringing best of the world class niche technologies to GSL/ India, through collaborations and tie-ups with world leaders. GSL has signed number of MoUs with

leading defence manufacturers to participate in global supply chain management of defence equipment.

With planned design and construction of highend platforms locally and collaborative local manufacturing with world leading OEMs, GSL has chalked out a progressive ambitious path for itself and is well on course for joining the league of select few shipyards in the world with very wide capabilities. These initiatives driven by 'Make in India' philosophy, coupled with its financial turnaround, execution performance and its metamorphic rise in last few years, much above its peers is clear result of its visionary leadership, proactive management and extremely dedicated and hardworking team of employees. ■

NHPC – Dedicated towards Nation Building



NHPC Limited stands as the pinnacle of India's hydropower sector, recognized as a Mini Ratna Category-I Enterprise by the Government of India. Demonstrating unparalleled expertise from project inception to execution, NHPC embodies excellence in the hydropower domain. Guided by a vision to become a global leader in sustainable clean energy, NHPC upholds values of competence, responsibility, and innovation.

Expanding its footprint beyond traditional hydro projects, NHPC has ventured into solar and wind energy, aligning itself with the burgeoning renewable energy landscape. This strategic diversification underscores NHPC's commitment to environmental stewardship and reflects global trends towards renewable energy adoption.

As of December 31, 2023, NHPC boasts an authorized share capital of ₹15,000 crore, a paid-up share capital of ₹10,045.03 crore and assets totalling ₹78,089.17 crore. Having successfully concluded its IPO in 2009, NHPC is listed on both the NSE and BSE.

NHPC's total installed capacity is 7097 MW and is presently engaged in the construction of projects aggregating to 10449 MW. Currently NHPC spearheads 60% of all hydro projects under construction in India. Among its flagship endeavours, the 2,000



2000 MW Subansiri Lower HE Project (Assam/ Arunachal Pradesh) – Dam

MW Subansiri Lower project stands as a testament to NHPC's prowess, representing one of India's largest hydroelectric projects. Similarly, the 2,880 MW Dibang Multi-purpose project underlines NHPC's commitment to pioneering initiatives in power generation and flood moderation.

In line with the Government of India's clean energy transition objectives, NHPC is steadfastly working towards achieving an installed capacity of 23,000 MW by 2032 and 50,000 MW by 2047. This trajectory will not only position India prominently on the global hydropower map but also elevate NHPC among the world's top 10 hydropower companies.

Committed to environmental sustainability, NHPC has embraced the goal of achieving net-zero emissions by 2070, echoing the clarion call set forth by the Hon'ble Prime Minister of India. With unwavering

dedication, NHPC is driving forward, embodying the spirit of contributing to a greener, more sustainable future.

A true nation builder

As a cornerstone of national development, NHPC assumes a central role across diverse sectors vital for India's progress, including Energy Security, Infrastructure Development, Regional Advancement, Environmental Sustainability, Water Resource Management, Research and Innovation, Disaster Management, and Risk Mitigation. Aligned with the visionary framework of Viksit Bharat@2047, NHPC is committed to fostering a prosperous India.

With a mission to achieve comprehensive sustainable development, economic prosperity, and environmental stewardship by 2047, NHPC's multifaceted contributions resonate deeply within the



690 MW Salal Power Station (Jammu & Kashmir) - Concrete Dam

fabric of the nation. Central to its mandate is the enhancement of India's energy security through the harnessing of hydroelectric power. By spearheading the development and operation of hydroelectric projects nationwide, NHPC plays a pivotal role in diversifying India's energy portfolio, thereby diminishing reliance on fossil fuels and imported energy resources.

NHPC stands as a beacon of excellence in India, equipped with both the technological infrastructure and a highly skilled workforce capable of executing hydroelectric projects seamlessly from conception to completion. Bolstered by a world-class team of technically adept professionals, NHPC excels in the meticulous planning and design of all facets associated with hydropower initiatives, ensuring optimal outcomes and sustainable growth.

Unparalleled expertise in hydropower development

NHPC has achieved remarkable milestones, overcoming numerous challenges to successfully deliver 22 hydro power stations in remote locations.

Leveraging its technical prowess and professional acumen, NHPC has demonstrated its capability by erecting 19 Concrete Dams, 6 Rockfill Dams, 6 Barrages, and 16 underground Power Houses. This feat accentuates NHPC's financial resilience, marked by consistent profitability since its inception, culminating in a record Profit After Tax (PAT) of Rs. 3,834 crore for FY 22-23.

The construction of hydroelectric power plants by NHPC necessitates the creation of extensive infrastructure, including dams, tunnels, and powerhouses. Beyond electricity generation, these projects serve as catalysts for job creation and economic stimulation in their respective regions, promoting comprehensive infrastructure development.

NHPC's engineering marvels and pioneering innovations in hydropower development have set unparalleled benchmarks in the industry. Among NHPC's exceptional engineering achievements are:

- **World's Longest Inclined Pressure Shaft:** NHPC's construction of the world's longest inclined pressure shaft,

stretching over 1.5 kilometers as part of the 800MW Parbati-II hydroelectric project, showcases its unparalleled expertise in navigating complex terrains for harnessing hydropower potential.

- **Development of India's Largest Reservoir:** NHPC's construction of India's largest reservoir at the 1000MW Indira Sagar Power Station, with a capacity of 12.22 billion cubic meters, plays a key role in water storage, flood control, and power generation, supporting the nation's energy security and water management efforts.

- **Pioneering Concrete Rock-fill Dam Construction:** NHPC led the change in India by pioneering the construction of the country's first Concrete Rock-fill dam at the Dhauliganga Power Station. This innovative technique combines the strength of concrete with the flexibility of rock-fill, ensuring stability and durability in challenging geological conditions.

- **Breakthroughs in Tunneling Technology:** NHPC achieved a remarkable feat with the highest monthly progress of 816 meters by a Tunnel Boring Machine (TBM) at the Kishanganga hydroelectric project. This accomplishment highlights NHPC's efficiency and proficiency in tunneling technology, expediting project timelines.

- **Introduction of Jet Grouting:** NHPC introduced jet grouting technology for the first time in India at the 510MW Teesta-V Project. This ground improvement technique strengthens soil and rock formations, enhancing the stability of foundations

and underground structures in hydropower projects.

Despite the many challenges that a hydro project faces during construction, NHPC has been able to complete hydro projects ahead of schedule. Notable examples include the Chamera-II project in Himachal Pradesh, the Indira Sagar and Omkareshwar projects in Madhya Pradesh, and the Kurichu Project in Bhutan.

Moreover, NHPC's dedication to safety and security is paramount across all its installations.

The establishment of a Real-Time Seismic Data Centre and an Early Warning System is a testament of NHPC's proactive approach to mitigating risks associated with natural disasters.

NHPC's ecological efforts extend beyond compliance to include initiatives such as the integration of Environmental, Social, and Governance (ESG) aspects into its business operations. Through advanced techniques like Remote Sensing and GIS, NHPC addresses environmental concerns while prioritizing the well-being of communities.

Furthermore, NHPC's role in rural electrification through initiatives like the Deendayal Upadhyaya Gram Jyoti Yojana emphasizes its commitment to social responsibility. By electrifying thousands of villages, NHPC not only improves living standards but also catalyzes socio-economic development in rural areas.

In essence, NHPC's endeavours epitomize a holistic vision for a better India, characterized by sustainable development, technological innovation, and social empowerment. Wherever NHPC operates, it enriches

lives, empowers communities, and contributes to the nation's progress.

A responsible Corporate Citizen

NHPC's Corporate Social Responsibility (CSR) policy encompasses a wide spectrum of initiatives aimed at promoting health, education, poverty alleviation, environmental conservation, clean water access, and the welfare of marginalized individuals, especially women and children.

Through robust CSR activities spanning health, education, skill development, and beyond, NHPC demonstrates its profound commitment to social responsibility, complemented by substantial financial investments. These initiatives not only uplift communities but also foster sustainable development and social equity throughout India.

NHPC's CSR endeavours are instrumental in nurturing resilient communities, driving sustainable growth, and advancing social justice across the nation. By prioritizing the well-being and empowerment of individuals, NHPC exemplifies corporate citizenship and ethical business practices, enriching lives and contributing to social progress.

The substantial increase in CSR allocation from Rs. 127 crore in FY 2022-23 to Rs. 171 crore in FY 2023-24 underscores NHPC's escalating dedication to spreading positive societal change. Moreover, NHPC's emphasis on hydroelectric projects aligns seamlessly with India's sustainable development goals and environmental preservation efforts. By harnessing clean and

renewable energy sources, NHPC significantly reduces greenhouse gas emissions, playing a pivotal role in combatting climate change and advancing the nation's low-carbon agenda.

NHPC's efficient management of water resources for power generation ensures sustainable utilization while enhancing water security in the country. Through innovative research and technological advancements, NHPC continually enhances the efficiency, reliability, and sustainability of hydroelectric power generation, driving progress in the sector.

Robust disaster management and risk mitigation measures implemented by NHPC safeguard lives, property, and critical infrastructure, particularly in disaster-prone regions, strengthening overall resilience in the face of natural calamities.

As a wholly Green Power generating company, NHPC champions clean, renewable energy with minimal carbon footprints, supporting the national grid and integrating solar and wind energy into the power system. Recognized with the 2021 International Hydropower Association Blue Planet Prize, NHPC sets a benchmark for sustainable hydropower development and environmental governance in the energy sector. In FY 2023-24, NHPC's power stations collectively generated 21779 MUs, supplementing its indispensable role in India's energy landscape. NHPC's journey epitomizes a balanced approach to energy provision, sustainable development, and social welfare, positioning it as a linchpin in India's energy future. ■

RailTel: Building the Digital Backbone for Viksit Bharat



As we complete 75 years of independence and step into the Azadi ka Amritkal era, the journey towards 100 years of independence brings forth a monumental task - to achieve the status of a fully developed nation, or Viksit Bharat, by 2047. At the heart of the Viksit Bharat vision lies the goal of fostering inclusive economic participation for all citizens. Beyond mere development, the overarching mission is to emerge as a global leader or Vishwaguru, embodying the spirit of Vasudhaiva Kutumbakam - the world as one family.

Public Sector Undertakings (PSUs) have always been integral to national development, and the pursuit of Viksit Bharat is no different. Across various sectors, PSUs are gearing up to make significant contributions to this ambitious mission. As a PSU operating in the Telecom, IT, and ICT domain, RailTel takes pride in its role of constructing the digital infrastructure that will serve as the backbone for Viksit Bharat's progress.

RailTel began its journey in 2000 as a Telecom arm of Indian Railways. Subsequently, RailTel has, by way of expansion, diversification & upgradation, has now emerged as a prominent ICT provider and one of the largest neutral

telecom infrastructure providers in the country. The biggest asset of RailTel is Pan-India optic fiber network of 61000+RKM (and growing) along Railway track. The OFC network covers important towns & cities of the country and several rural areas. In addition, RailTel also has 21000+ KM City Access network, around 11000+ Point of Presence, 1050+ telecom towers, Two Tier-III certified Data Centres at Gurugram and Secunderabad, MeitY empanelled RailCloud, specialized Security Operation Centre and a team of highly professionally qualified domain experts. At its essence, RailTel serves as a catalyst for the knowledge economy, tirelessly striving towards building digital infrastructure and aiding digital transformation

Bridging the Digital divide-

Ensuring inclusive growth necessitates equitable access to infrastructure for all, yet a significant digital divide persists between urban and rural India due to infrastructural limitations in remote areas. While initiatives like Digital India and the availability of affordable smartphones have increased internet usage, there remains a substantial gap in providing cutting-edge digital infrastructure

to villages and remote regions.

To transform railway stations into hubs of digital inclusion, RailTel has implemented cutting-edge public Wi-Fi at 6108 stations nationwide. This is one of the world's largest integrated Wi-Fi Networks, spanning across India and reaching the country's remotest regions. Our Wi-Fi infrastructure has facilitated connectivity for individuals having limited access to telecom services. Moving forward, we are leveraging this countrywide station Wi-Fi network to generate revenue in partnership with a consortium. Additionally, we are extending internet access to communities surrounding railway stations, enhancing their connectivity and accessibility.

Extending the idea of bringing digital connectivity to all, we are also working for Gujarat Fibre Grid Network Limited (GFGNL) for providing FTTH/FTTX services across 22 districts of Gujarat via a revenue-sharing model. We have signed an agreement with them which aims to extend broadband connectivity to homes, government offices, health centers, Anganwadi centers, post offices, and banks in 8080 Gram Panchayats. This entails providing high-speed internet and Quad Play Services (FTTH, IPTV, OTT, Digital

Services). This comprehensive service package includes television, entertainment, a digital stack, and Government to Citizen (G2C) benefit awareness programs on home televisions. The technology, combining CPE Hardware, Middleware, Edge AI ML, and IoT, transforms rural homes into digitally empowered smart homes.

Partnering Digital Transformation of Indian Railways.

RailTel is a digital transformation partner of its parent organization-Ministry of Railways. We have worked on a number of ambitious projects of IR aimed at digital transformation. We've implemented the NIC e-Office solution across 236 units, fostering a paperless office culture and enabling remote work through RailTel's VPN service. Additionally, our HD Video conferencing services facilitate seamless communication, saving time and administrative costs while reducing carbon footprints. Amid the COVID-19 lockdown, these solutions proved invaluable, allowing uninterrupted operations. RailTel's implementation of the Hospital Management Information System (HMIS) across 709 healthcare facilities of Railways enhances hospital administration and patient care by maintaining electronic medical records. We've also developed teleconsultation and beneficiary apps, seamlessly integrated with HMIS, empowering medical beneficiaries. Integrating HMIS with the Ayushman Bharat Digital Mission (ABDM) further augments healthcare capabilities. Furthermore, we are working

on providing IP based Video Surveillance Systems at 5000+ railway stations which will enhance security measures, ensuring passenger safety across the railway network.

Additionally, we're engaged in replacing outdated mechanical signaling systems with state-of-the-art Electronic Interlocking systems at 26 railway stations within the Northern Railway Zone. Furthermore, we're installing Integrated Tunnel Communication System on a number of critical sections of the Indian Railways network, prioritizing the safety of train operations. Our aim is to play a pivotal role in modernizing the Train Control System of Indian Railways through the execution of the KAVACH project, which focuses on implementing a Train Collision Avoidance System. Currently, we're working on few projects that lay the groundwork for this upgrade, underscoring our commitment to enhancing railway safety and efficiency.

Building Digital Infra

With the surge in digitalization efforts across industries, the demand for Data Centres has multiplied in recent years and is projected to grow continuously. RailTel already has two UPTIME USA certified Tier-III Data Centres located in Secunderabad and Gurugram and MeitY empanelled Cloud- Railcloud. Currently, we are focused on enhancing capacity and expanding our presence in the Data Centre segment. We are now working on establishing a full-scale Data Centre in Noida.

We are also working on bringing Edge Data Centres (EDC) to Tier 2,

3 cities across India in partnership model. EDCs improve latency with local data processing, EDCs reduce the bandwidth required for data transmission, leading to cost savings and improved efficiency.

Commitment to Sustainability and Innovation: Pioneering a Greener Future

In the dynamic world of telecommunications, sustainability and innovation are not just buzzwords but essential pillars that define the success and the ethical footprint of a company. RailTel is committed on integrating Environmental, Social, and Governance (ESG) principles in its functioning focussing on environmental sustainability, governance excellence, and pioneering climate action.

We are actively pursuing green certifications for our data centres at Gurgaon and Secunderabad, targeting significant improvements in Power Usage Effectiveness (PUE) which reflect our commitment to Green Building principles and optimization of present data centre.

We are also working towards transitioning to green energy, installing solar PV systems at feasible office locations, and integrating sensor-based systems for efficient electricity and water usage. Moreover, we are committed to reducing paper usage through NIC E-Office and adaptation of Green Electric Vehicles (EVs) to promote eco-friendly practices.

We are in process of installing the Solar rooftop plant of 28KW capacity at our Gurugram office building. We are exploring

opportunities to partner with Railways to install solar panels on station rooftops, utilizing solar-generated electricity to power free Wi-Fi hotspots at stations and RailTel PoPs, this will contribute in reducing total energy consumptions through energy saving mechanisms.

Innovation and skill building

We understand the need for innovation and skill building for the growth that we are seeking and RailTel is putting dedicated focus on the same. With dedicated emphasis, we are spearheading various initiatives to innovate and deliver cutting-edge services.

RailTel has deployed India's 1st neutral Radio Access Network (RAN) at Mumbai Central Railway station, highest traffic transit corridor of the country, to mitigate the network issues at congested locations in terms of quality of voice and low data rate. Further this solution has been extended at 8 more sections of Churchgate-Dadar sections of Mumbai Suburban corridor.

We have launched a Centre of Excellence (CoE) for Railway Signalling & Telecommunication training. In collaboration with esteemed institutions such as IIT and IIM, the CoE will offer a spectrum of certifications and courses covering pivotal areas like KAVACH (Automatic Train Protection) and Cyber Security.

Recognizing the power of collaboration, RailTel is forging strategic partnership with IITM Pravartak for training on advanced networking, 4G/5G, security etc and with Qmansys

Infosolutions LLP "VOLTRRON for joint Collaboration for Electric Vehicle Charging System Infrastructure Management. We have signed a MoU with ECIL (Electronic Corporation of India Limited) to establish a collaborative partnership in the field of ICT, Homeland Security and cloud Services etc and with University of Birmingham for development of Digital Twin for railway operation and maintenance. Additionally, our collaborations with premiere organizations such as IIT-Delhi, AIIMS-Delhi, CDOT, NIC & NICS, and CDAC aim to introduce innovative solutions spanning healthcare, IT, and ICT domains.

CSR- Uplifting marginal community -

We cannot become a developed country if we don't ensure upliftment of marginal community. RailTel's CSR initiatives are designed to create a positive impact on society through interventions in key areas such as education, healthcare, nutrition, environmental sustainability and community development. These initiatives are aligned with the needs of local communities, contributing to the nation-building process and enhancing the quality of life for marginalized populations.

In the education sector, we support socially and economically backward meritorious students by providing them with residential coaching and knowledgeable teachers to help them succeed in reputed engineering institutions. We support education for slum children who lack access to schools or drop out due to various

reasons, ensuring they have the right to education.

We are also dedicated to healthcare commitments, providing healthcare and nutrition facilities to the less privileged through health check-up camps, eye check-up camps, dental checkup camps, provision of spectacles, sanitary pads, and nutritious foods to women and organizing awareness campaigns to promote positive behaviour towards healthcare and nutrition. We also focus on the health and nutrition of children of sex workers and orphaned children giving them the opportunity to sustain themselves and lead a dignified life and, in the process, contribute to the nation as responsible citizens.

Recognizing the commitment of India to environmental sustainability on the world stage, RailTel is addressing climate change by turning towards renewable energy sources. The company is installing high mast LED Solar Street lighting systems at various locations and raising awareness about the use of alternative energy sources.

RailTel's community development programmes focus on skill development, rural employment, and support for local artisans, providing opportunities for economic growth and empowerment.

For us, RailTel's CSR initiatives are not just corporate obligations; they are a testament to its commitment to creating a positive impact on society.

To conclude, RailTel is fully geared up to contribute in building a Viksit Bharat- a developed country fuelled by the spirit of Digital India, Make in India & Aatmanirbhar Bharat. ■

SECL: Powering the Nation, Enriching the Environment, Empowering the Communities



Thermal power plants contribute to around 70-75% of electricity generation in India. Coal remains one of the most reliable sources of energy and is likely to remain so for the next 3-4 decades. Considering the growing electricity demand as India looks to become a developed nation by 2047, the Ministry of Coal has set a target to produce 1.31 billion tonnes of coal by FY 2025 and 1.5 billion tonnes of coal by FY 2030.

Chhattisgarh-based Coal India subsidiary South Eastern Coalfields Limited (SECL) is one of the largest coal-producing companies in India and currently produces about a fifth of the total coal produced in India. It is the first coal company to break the barrier of 150 MT annual coal production. In the recently concluded FY 23-24, SECL registered coal production of 187.4 million tonnes which is the highest in the history of the company.

But the company is not just about securing India's energy needs but it is firm in its commitment to do so sustainably while protecting the environment and giving back to the communities.

Mining coal sustainably and boosting environment-friendly coal dispatch infra

Sustainable coal mining is an

integral part of SECL's mining operations spread in the states of Chhattisgarh and Madhya Pradesh. The company has deployed some of the World's largest machines in its mines powered by eco-friendly mining technology. For example, in the opencast mines of SECL Surface Miners extract coal without the need for blasting and also cut the coal in the right size improving the overall quality of coal. In the underground mines, continuous miners are being used which are proving pivotal in the safe and efficient extraction of coal in tough underground mining conditions.

For the pre-coal extraction process, Overburden Removal (OBR) SECL has introduced vertical rippers in its megaprojects which remove the layers of rock and earth to expose the coal seam without blasting considerably reducing safety issues and the

problem of vibrations in nearby residential areas due to blasting.

The quick and efficient dispatch of coal is as crucial as its production. To promote eco-friendly evacuation of coal the company is focused on first, the development of rail infrastructure in coalfields through its two subsidiaries Chhattisgarh East Railway Limited (CERL) and Chhattisgarh East West Railway Limited (CEWRL), and second is ensuring first-mile connectivity (FMC) for sending coal from the pit-heads to the rail sidings.

In FY 23-24, SECL witnessed a historic moment when Hon'ble Prime Minister inaugurated SECL's two crucial projects. The first project was the CERL Phase-II built at a cost of over Rs. 3,055 crore. The 125 km long rail network between Kharsia and Dharamjaigarh will connect the mines of the Mand-Raigarh



Coalfield, one of the largest coalfields of the country located in Raigarh district, directly to the power plants across the country and help in quick and eco-friendly coal dispatch through electrified rail line. In future, with the development of passenger transport facilities, people of tribal-dominated areas will also be able to join the mainstream of the country.

The work on Phase II of this project i.e. Dharamjaigarh-Korba line and about 191 km long Chhattisgarh East-West Railway Limited (CEWRL) is also in progress.

The second project was three FMC projects namely Dipka OCP CHP Silo in Dipka megaproject and Baroud and Chhal OCP CHP Silos in Raigarh Area of SECL. The three projects built at a total cost of more than 600 crores carry a total annual coal handling capacity of 41 million tons. These FMC projects are equipped with larger bunkers for storing coal and a rapid loading system that can load a rail rake with coal in less than an hour.

FMC projects carry many benefits which include eco-friendly transportation of coal as it eliminates the use of trucks for

sending coal from pit head to the siding leading to the lowering of greenhouse gas emissions. It also eases the traffic burden on roads making the lives of people living around mining areas easier.

The presence of these foundational rail infrastructure projects will boost the industrial development of the surrounding areas, particularly in tribal-dominated regions, leading to increased employment opportunities. Furthermore, these rail corridor projects will connect remote and underdeveloped regions of the state with major cities and other parts of the country, thereby substantially boosting economic activities in these areas.

Committed to protecting and conserving the environment

Producing coal is essential towards the vision of making India self-reliant in energy production but for SECL protecting the environment takes equal importance. Since its inception, SECL has planted more than 3 crore saplings in the coal belt of Chhattisgarh and Madhya Pradesh. In the financial year 23-24, SECL planted a record 10.77 lakh saplings in more than

475 hectares. MoUs have also been signed with Chhattisgarh and Madhya Pradesh Forest Development Corporation for the plantation of 38 lakh saplings in the next five years.

SECL is constantly striving for the utilization of water from mines. In the year 2023-24, about 258 lakh kiloliters of mine water have been provided for irrigation and about 28.2 lakh kiloliters of mine water for domestic use by SECL.

The Kenapara eco-tourism site located in Surajpur district of Chhattisgarh has emerged as a beautiful example of 'sustainable mining' in the coal industry and is receiving accolades all over the country. SECL is now working to establish 3 more such eco-parks in the Manikpur, Kusmunda and Gevra areas of Korba district.

SECL is also giving green energy a push through its solar project and the company aims to become to net-positive company. The company commissioned a 20 MW ground-mounted grid-connected solar project in Bhatgaon Area. The company is operating rooftop projects of 580 KWp capacity in various regions, while additional projects of 4000 KWp capacity are under implementation.

Energy efficiency measures like planning of electric vehicles, replacement of conventional lights with LED lights, and purchase of equipment with high star rating are also being undertaken.

Protecting the interests of the Project Affected

For the coal industry, the only raw material is land. For sustained mining operations, timely acquisition of land for





expanding mines is crucial and therefore protecting the rights of the people occupying the land and taking care of their Resettlement and Rehabilitation becomes important.

For its megaprojects Gevra - which is the largest coal mine in the country, Kusmunda and Dipka, the company implemented a more lucrative compensation and R&R policy, first of its kind in Coal India and increased the monetary compensation for landowners. In the last two years, SECL has sanctioned employment to more than 1400 project-affected persons which is a record in itself.

Using CSR as a tool for better community relations

For SECL CSR is not just a statutory requirement but it is a way to strengthen the company's relations with the communities in its coalfield areas and empowering them. SECL is one of the top CSR spenders in the coal belt of Chhattisgarh and Madhya Pradesh.

SECL's CSR endeavours span a wide spectrum, covering healthcare, education,

livelihood enhancement, rural development, environmental conservation, sports promotion, heritage preservation, art and culture, sanitation, and welfare of differently abled and ex-servicemen. Adhering to regulatory mandates, SECL's CSR activities aim to bring about meaningful change in the lives of local communities.

Under the vision of 'Viksit Bharat' and 'Digital Bharat,' SECL has embarked on transformative initiatives resonating with the national ethos. Prominent among SECL's initiatives is the establishment of 782 Smart Classrooms across government schools in Korba, Raigarh, and Umaria districts under its PM e-VIDYA initiative. With a budget of 17.98 Crores, this endeavour has positively impacted over 95,000 students annually, ushering a new era of digital education. These Smart Classrooms are tailored to provide digital learning opportunities up to the 12th standard, facilitating multi-mode access to learning.

Furthermore, SECL's commitment to educational empowerment extends through its "SECL ke Sushrut" initiative, a CSR initiative providing free NEET

Coaching, Boarding, and Lodging facilities to 40 underprivileged students. This initiative not only supports aspiring medical professionals but also embodies SECL's dedication to fostering equal opportunities in education, contributing to the nation's development agenda.

Echoing the vision of youth-centric development, SECL has introduced various skill development initiatives, collaborating with institutions like the Central Institute of Petrochemicals Engineering & Technology (CIPET). Through these efforts, SECL has provided skill development training to over 1200 beneficiaries, achieving an impressive placement rate of over 90 per cent. In addition, under the PM Vishwakarma Yojna, SECL has empowered 50 women in the Annappur district through sewing machine training and distribution, fostering self-employment and economic independence.

SECL has undertaken numerous healthcare initiatives, including infrastructure development projects such as providing CT Scan and MRI machines at CIMS, Bilaspur, Govt. Medical College Ambika, and District Hospital, Baikunthpur. It has also facilitated the deployment of Advanced Life Support Ambulances, established COVID Testing Labs, and set up Exclusive COVID Care centres in hospitals. Beyond infrastructure development, SECL actively engages in community healthcare by organizing village health camps. Moreover, the company has collaborated with district administrations in Chhattisgarh and Madhya Pradesh to combat the spread and mitigate the impact of the COVID-19 pandemic. ■

Contribution of TCIL towards Viksit Bharat@ 2047



In Line with the PM Vision of Viksit Bharat @ 2047, TCIL is contributing various aspects of development, including economic growth, social progress, environmental sustainability and good governance. The various initiatives being undertaken by TCIL towards Innovation, R&D, CSR, climate action, environmental sustainability, effective governance, new initiatives are as below :

1. Promotion of domestic technology in line with the government's Atmanirbhar Bharat campaign and thus contributing to the vision of Viksit Bharat @ 2047

TCIL is wholeheartedly committed to Atmanirbhar Bharat and has been actively pursuing its policy for promotion of indigenously developed products. The policy is not limited to India but for the overseas markets also. Regular sessions are conducted to sensitize the TCIL officers about indigenously developed products and technologies. Further, as already mentioned, the focus area of TCIL has been to stitch solutions in a such a manner so as to maximize the utilization of indigenously developed products without compromising profitability and quality of the project.

TCIL is actively supporting Voice of Indian Communication

Technology Enterprises (VoICE), which is a new Society working on AtmaNirbharta in Telecom Sector with participation restricted only to Indian registered companies with Indian R&D, IPR and designs.

In this series, several measures have been initiated by TCIL to boost the domestic telecommunications infrastructure & ecosystem and remove the bottlenecks in the sector:

i. TCIL has offered Free of Cost PoCs to overseas clients for Indigenously developed products. Currently one indigenously developed Health ATM is being tested by Government of Uzbekistan pursuant to the free POC offered by TCIL.

ii. TCIL is in active discussion with government operators in Angola, Gambia and Mauritius to pitch Indian telecoms equipment 'Tejas' as viable upgrade alternatives. TCIL has offered them a converged core for delivering both fixed and mobile services along with operation of the backbone network.

iii. TCIL has empanelled 184 Startups and SME as technology partners to promote their products.

iv. TCIL gives preference to India manufactured Products in its various bid submissions.

v. TCIL has been writing to various clients to modify the technical specifications wherever it is found that the specifications are inclined to specific foreign OEM, or the specifications are pertaining to Foreign Standards like 'Gartner Report'.

2. Focus areas as a Master System Integrator (MSI)

TCIL has been the project implementation agency for various projects in the fields of IT, Telecom, Power and Civil Engineering from the various government departments round the world. Business vertical wise TCIL has laid its focus in areas like e-Education, e-Health, Cyber Security, Artificial Intelligence, Blockchain, 4G-5G, IoT and Video Analytics. As a Government MSI, the focus area of TCIL is to stitch solutions in a such a manner so as to maximize the utilization of indigenously developed products without compromising profitability and quality of the project. This is particularly important to break any sort of cartelization in the industry. Quoting Indigenously developed products while participating in various tenders is the unique value proposition of TCIL. Recently TCIL bagged a large value Data Center project with significant margin by using this strategy leading to substantial saving for the exchequer.

3. TCIL differentiate itself from the competition.

TCIL has never been part of rat race for profit making and has always prioritised the National Interests above anything. Strategically important projects and Geographies have been successfully tapped by TCIL in the past.

Diversified Area of Operations:

TCIL is only Company from Government of India which is working in the field of IT & Telecom as well as in Civil, Architecture and Power sector with inhouse expertise. TCIL boasts of impressive Global Exposure with footprints in more than 80 countries, which has inculcated a wider viewpoint in the company leading to unique value proposition for our clientele. We understand the unique needs and preferences of our clients and provide products/services that cater to their specific requirements in holistic manner, giving us a competitive advantage over companies with sector specific approach.

Innovation and Technology: We embrace the latest advancements in technology and foster a culture of innovation within our company. By leveraging cutting-edge technologies and solutions, we deliver innovative products/services that are tailored to the Indian market, providing us with a technological edge over competitors.

Quality and Reliability: We prioritize uncompromising quality and reliability in all aspects of our operations. Our products/services adhere to the highest quality standards, and we have built a reputation for reliability, earning the trust of

Indian customers who value consistency and dependability in their purchases.

Strong Local Partnerships:

We have established strong partnerships and collaborations with local companies, organizations, and experts in India and abroad. These alliances enable us to tap into local resources, networks, and market insights, giving us a competitive advantage over companies without similar local connections

4. Plans in terms of Expansion.

TCIL has identified several technological areas for expansion including the following:

- **E-Health:** Telemedicine, Hospital / patient management systems, Health ATMs, Diagnostic Labs, Dissection Labs, Ambulance Service
- **E-Education:** Smart Class, Virtual Class, School & University Management System, Demand Based Real Time Teacher Assist System, AR/VR Based Learning Platforms.
- Export of domestic Telecom products like 4G/5G Core, RAN, DWDM, IP-MPLS to Russia.
- 4G & 5G Core and RAN Network, Converged Core Network
- DWDM/MPLS based Backbone Network
- IBS, Outdoor Mobile Coverage solutions
- **Captive Network Solutions:** Industrial Automation, Office Automation, Audio Video based solution, Asset Tracking, Safety Solutions, Visitor Management, Surveillance, Port Management System,

Airport Management Platform.

- Centralised Disaster Management Network
 - **Drone Based Solutions:** Solutions for Agricultural, Survey/Mapping Applications, Crowd Management, Asset Management, Surveillance solutions.
 - Smart Pole based Solutions for Smart Cities/NDMC.
 - **Intelligent Traffic Management System:** Incident detection, Lane/speed violation, Unwanted Vehicle detection, ANPR/GIS based toll collection.
 - **Fintech-** Digital Banking & UPI
 - Cyber Security, Quantum Key, SOC
 - Video Analytics based CCTV Surveillance Systems, Visitor Management System, Attendance System,
 - Office automation
 - **IoT:** 4G/5G based Smart building solutions, Smart Energy/Water/Gas Metering, AVTS,
 - AI and Block chain based UCC/ Transparency Portal system.
 - Block-Chain based Unified e-KYC platform,
 - **Solar system:** Roof-top Solar system, Solar Smart Street lights, Solar Farm.
 - **Data Centre:** Executing Data centre Projects, Data Centre as Service.
- 5. Strategies to improve your operations and build long terms relationships with key suppliers.**
- TCIL being project-based organisation remains vigilant on terms of its operational efficiencies. TCIL management proactively takes multi-disciplinary measures

to improve upon this as given below:

Streamline Processes with Vendor Charter: Several Structural changes have been carried by the TCIL management clearly defining the delegation of powers to fast track the decision-making process. Vendor Charter has been prepared for timely resolution of the vendor issues. Standard templates have been designed and approved for facilitating faster and smoother operations. TCIL has adopted automation, digitization, and standardization by implementing the ERP and E-Office to streamline operations, reduce costs, and improve overall efficiency.

Performance Measurement and Monitoring: TCIL has established a culture of defining the key performance indicators (KPIs) to measure the performance of various operational processes. Management regularly monitors these metrics to identify areas that require improvement and take appropriate actions to address any shortcomings.

Training and Development: TCIL regularly Invests in training and development programs for employees to enhance their skills and knowledge. Provide opportunities for continuous learning and upskilling to keep up with evolving technologies and best practices. TCIL has holistically implemented "MISSION KARMAYOGI". Having completed FRAC [Framework of Role Activity and Competency] & Competency GAP analysis, training interventions have been made. In 2022-23, TCIL has conducted 40 Trainings including 176 employees & 2023-24 TCIL has

conducted 71 Trainings including 641 employees encompassing various Behavioural, Functional and Domain competencies.

Focus on Make in India: In line with the Vision of Atmanirbhar Bharat, TCIL actively pursues the MII policy. There is special focus on Make in India and export of Indigenous technology in the field of 4G/5G, GPON, Converged Core, Fintech solutions and biometric based National ID solutions.

Collaborative Supplier Relationships: We have fostered a culture of collaboration with key suppliers wherein we Engage in regular communication and establish open channels for dialogue. TCIL management organises Networking Lunch sessions with its various OEM/SI partners.

Healthy Ecosystem: TCIL has created a healthy ecosystem of OEMs and SI through a transparent and online method of empanelment wherein Manufacturers and the System Integrators can get empanelled with TCIL seamlessly. Innovators and Startups are also encouraged to get empanelled through the same process but under separate category of Startups. A detailed agreement is signed with the empanelled partners. As on date 184 Startups have been empanelled with TCIL while total 120 OEMS/SIs have empanelled with TCIL taking the total tie-ups to 304.

6. CSR

TCIL is committed to conduct business in a socially, economically and environmentally responsible and sustainable manner, which enables the creation and

distribution of wealth for the betterment of all its stakeholders, internal as well as external, through the implementation and integration of ethical systems and sustainable management practices. For this TCIL had laid a balanced emphasis on all aspects of corporate social responsibility and sustainability with regard to its internal operations, activities and processes, as well as undertake initiatives and projects to facilitate capacity building, empowerment of communities, inclusive socio-economic growth, environment protection, promotion of green and energy efficient technologies, development of backward regions, and upliftment of the marginalized and under-privileged sections of the society.

As per CSR rules, TCIL has spent an amount of Rs 6 Lakh (approx.) voluntarily on CSR Projects/Activities in FY 2023-24.

The Activities undertaken are as follows:-

- 1- Providing 6 Nos. of Multi-sports Wheelchairs to 6 Nos. of specially-abled(disabled) basket-ball players. The wheel chairs had been designed according to the International Wheelchair Basketball Federation regulations. The step taken by TCIL shall improve the scope and facilities for Paralympic sports in India.
- 2- Implementation of Smart classroom in Maharaja Surajmal Public School, Shamli District, Uttar Pradesh. The classroom has been equipped with cutting edge ICT technology equipment like 65" Interactive Flat Panel, Speakers, Frame Housings, Cabinet, wireless Mouse and

Keyboard and Ups with atleast 2 hours backup. Training has also been provided to the Teachers for effective use of Smart Classroom.

7. TCIL new e-Governance initiative

TAPAS (TCIL Application Program for Administration and Services)

a. Problem statement

The current ERP used by TCIL is 10+ years old and not conducive to the ever-changing process, technology and control landscape. Current ERP system is outdated and not up-to mark as per current scenarios. Operational efficiency of day-to-day working is to improved. Integrated eagle view for decision makers was also not available. To achieve the Government Target in faster and smarter way, to mitigate these problems, to enhance operational efficiency, to make paperless office, TCIL decided to implement a future framework - Oracle EBS R12 suite of applications.

b. E-Governance initiatives to handle issues to drive smart, near real-time and granular decisions

Business critical modules like Lead Management, Sales & Marketing, Material Management, HRMS, Recruitment, APAR, ESS portal & Mobile App, Project Management, Payroll, Finance & Accounting and MIS & Dashboards are being implemented in TCIL to achieve

the best industry practice. These modules are already rolled in Jan-2024 for parallel run. More than 650 GB of existing data is being migrated to new Database and accuracy of records is ultimate target. Integration with all possible standalone applications is being done to achieve the Real-time information. Change Management is the main challenge which is being mitigated with the help of Decision Makers.

c. Positive impact generated with the solution implemented

This leapfrog will empower stakeholders & decision makers to access information & services through an intuitive and integrated interface. Objective is to track the various activities that from Lead Management to Project Delivery; Procurement to Vendor Payments; Contracts to Customer Delivery along with Hire to Retire processes including Payroll, all in a single integrated suite of applications. This integrated view of company data will improve information sharing and collaboration across functional and corporate boundaries, and will help to get Real-time information, Improved Visibility, Faster closing of month/Quarter/Year-end, Controlled costs, Increased customer & employee satisfaction, operational efficiency and accuracy in records.

Other advantages of the system and various integrations are:

1. Complete paperless automation system

2. Automatic publication of Tenders on TCIL website (Being Tested)

3. Integration of Employees' Biometric attendance with system

4. Bank Integration to Banks for faster payment to the Employees and Suppliers

5. All employees related functionalities through single window system

6. Faster and smoother flow of Information and making system more efficient

d. Future Planning:

1. Utilizing Oracle ERP's reporting tools and analytics dashboards to evaluate the completeness and accuracy of data.

2. Conducting audits of the current data management practices to pinpoint areas where data collection or quality may be insufficient for informed decision-making.

3. Leveraging Oracle's Advanced Analytics and machine learning capabilities to enhance data analysis efforts and identify unseen gaps.

4. Using Oracles Enterprise Command Centre (ECC) for advanced reporting and dashboarding.

5. Advanced Analytics Integration, Data Warehousing, Predictive Analytics, Prescriptive Analytics, Cross-functional Collaboration, Automation and AI and Continuous Learning and Improvement. ■

BIRAC- Powerhouse of Biotech Innovation and Growth



India, the 3rd largest destination for biotechnology in Asia Pacific & among the Top 12 worldwide has confidently begun its journey to become a robust and globally competitive innovation hub for the world. Next 25 years leading to India's centenary of independence are set to play a pivotal role in propelling the country's economic growth towards the vision outlined by the Hon'ble Prime Minister as Viksit Bharat @2047.

India's bioeconomy has crossed the mark of USD 150 billion, a target perceived initially for 2025. This has surged from a value of less than 10 billion a decade back. Aiming for the stars, our target for India bioeconomy now stands at USD 300 billion by 2030. The growth trends within the biotech sector over the last decade underscore the significant contribution by this sector towards advancing the overarching goal of Viksit Bharat by 2047.

India has made significant advances in biosciences sending ripples throughout the globe. Forging its way to the forefront of the biotech revolution driven through strategic collaborations and innovation capabilities, India is positioning itself as a powerhouse of Biotech Innovation.

Leading this endeavour is the Biotechnology Industry Research

Assistance Council (BIRAC), a not-for-profit, Section 8, Public Sector Enterprise, under the Department of Biotechnology, Government of India. BIRAC's mission is to nurture and empower the nation's biotech innovation ecosystem. In the last 12 years, BIRAC has supported innovations in varied areas of biotechnology and has worked aggressively on building new pathways to support the pursuits of startups, SMEs and large companies through funding (as

grant and equity), incubation, product commercialization support and overall handholding for IP, Regulatory, networking etc.

BIRAC's unwavering dedication and proficiency in the field of biotechnology have yielded concrete outcomes, facilitating the growth of a biotech ecosystem that competes at the global level.

"BIRAC has played a pivotal role in driving the growth and success of the biotechnology industry in India and will continue the growth of entrepreneurship and overall scientific development in the ecosystem", says, Dr Jitendra Kumar, Managing Director, BIRAC.

Several Programs and schemes of BIRAC like BioNEST (Bioincubators Nurturing Entrepreneurship for Scaling Technologies), BIG (Biotechnology Ignition Grant), E-YUVA (Empowering Youth for Undertaking Value Added), SBIRI (Small Business Innovation Research Initiative), BIPP (Biotechnology Industry Partnership Programme), PACE (Promoting Academic Research Conversion to Enterprise), SIIP (Social Innovation Immersion Program), SPARSH (Social Innovation programme for Products Affordable & Relevant to Societal Health) and others have paced up the Indian biotech innovation ecosystem.



BIRAC's BioNEST & EYUVA schemes have created a network of 95 incubation and pre-incubation centres across 22 States/UTs of the country. Our schemes and programs have supported over 4000 beneficiaries, and enabled the development of over 800 biotech products that have reached the market. The various schemes and programs of BIRAC have been carefully curated to cater to the entire product development cycle vis-a-vis ideation, proof of concept, validation, and commercialization.

BIRAC also provides equity funding through three of its schemes- SEED (Sustainable Entrepreneurship and Enterprise Development), LEAP (Launching Entrepreneurial Driven Affordable Products) and ACE (Accelerating Entrepreneurs).

BIRAC (including mission programmes) has invested close to INR 4000 crore over the last 12 years and mobilised over INR 2600 crore from Industry and other partners. BIRAC-supported start-ups have raised investments of over INR 5500 crore from private investors, providing a testimony to the potential that many of these start-ups hold for the future.

The innovations supported by BIRAC span across diverse sectors including healthcare, agriculture, maternal and child health, nutrition, sanitation, waste-to-value, devices and diagnostics, bioinformatics, and animal health. The biotech industry has witnessed a surge in young innovators and entrepreneurs who are steadfastly committed to nation-building by providing innovative solutions to the unmet needs in the public health sector.

BIRAC-supported start-ups in this space have been addressing major challenges such as public health, climate change etc. and their contributions have been commendable.

BIRAC also supports high risk, deep-tech, innovation research with relevance for making India globally competitive. BIRAC has supported breakthrough medical innovations that will benefit patients as well as the societies for decades to come.

India has dealt with the pandemic with a spirit of self-reliance, may it be for development of PPE kits, face shields, remote monitoring systems or oxygen generators, the innovators have come up with path-breaking innovations. Four indigenously developed COVID vaccines, namely, ZyCoV-D (World's 1st and country's indigenously developed DNA Vaccine), CORBEVAX™ (protein subunit vaccine), GEMCOVAC™ 19 (mRNA-based vaccine), and iNCOVACC (intranasal COVID-19 Vaccine) have been validated through BIRAC support. These "Made in India" innovations have been useful not only nationally but globally as well. They have played a critical role towards building a self-reliant nation for tomorrow.

"Women entrepreneurship" is another major focus through which BIRAC drives inclusive growth. More than 350 women-led startups and projects have been supported by BIRAC. Three incubation centers are dedicated specifically to women entrepreneurs. These include Golden Jubilee Biotech Park, Chennai, Sri Padmavati Mahila Visvavidyalayam, Tirupati, and PSGR Krishnammal College for Women, Coimbatore.

The Grand Challenges India (GCI) program, developed in collaboration with the Bill & Melinda Gates Foundation, and the National Bio-Pharma Mission (NBM), in partnership with the World Bank, are two prominent international co-funding initiatives that have made strides in advancing innovation and research. The GCI program is dedicated to promoting affordable and sustainable solutions that improve health and well-being in India and across the globe. On the other hand, the National Bio-Pharma Mission is an industry-academia collaboration that aims to speed up the discovery research process to facilitate early development for biopharmaceuticals.

BIRAC's vision of fostering innovation and entrepreneurship in India is being realized through its partnerships with national and global organizations. By collaborating with revered agencies such as Gates Foundation, Wellcome Trust, The World Bank, Foreign Commonwealth and Development Office, UK, CARB-X, DAAD, Germany and so on, BIRAC is not only bringing in investments, but also the best practices in innovation and technology management to the country.

BIRAC's initiatives such as Regulatory Affairs and Policy Advocacy (RAPA) and the FIRST HUB platform are transforming the regulatory and policy environment for start-ups, entrepreneurs, researchers, academicians, incubation centres, SMEs, and others. Through these initiatives, BIRAC is providing a platform to address their queries and support their growth.

BIRAC's in-house IP & Technology Management Group is empowering start-ups, institutes, academia, and SMEs with the support they need to manage their intellectual property and technology. With services such as patent search, facilitation of patent drafting & filing, technology evaluation, and commercialisation, BIRAC is enabling them to achieve their full potential.

India's emphasis on initiatives like Make in India, Digital India, and Start-up India demonstrates our commitment to fostering an atmosphere that encourages economic growth. The focus is to make India a global player in the manufacturing

of affordable, innovative, and quality products and a leader in Innovation & Research for delivering and ensuring access to affordable products for better healthcare outcomes for universal health coverage. The future of development in various sectors is heavily dependent on collaboration among diverse stakeholders, including start-ups, academia, scientists, regulators and large industry.

With India's manufacturing hitting a 16 year high in March 2024, the sector shows a great promise for positive contribution to economic growth and job creation for the country. Coupled with this is the proposed scheme for Biomanufacturing and

Bio-foundry to be championed by the Department of Biotechnology & BIRAC. This was also outlined in the Interim Budget of 2024 by our Hon'ble Finance Minister Smt. Nirmala Sitharaman, providing a clear indication of India's commitment to fostering sustainability and long-term growth led by biomanufacturing in the biotech sector. BIRAC as an organization constantly strives to understand the current and future needs of bio-enterprises and bring transformative changes through supporting and sustaining cutting-edge technologies, along with a larger vision of being a global manufacturing hub to reach the mission of becoming "Viksit Bharat". ■

Brahmaputra Cracker and Polymer Limited



Viksit Bharat 2047 envisions India as a fully developed nation with robust infrastructure, advanced technology, and a high standard of living for all its citizens. By 2047, India aims to achieve significant progress in key areas such as economic growth, social development, environmental sustainability, and global influence. The vision includes a thriving economy driven by innovation and entrepreneurship world class infrastructure supporting seamless connectivity equitable access to education and healthcare, environmental conservation, and active participation in global affairs as a responsible global citizen.

Petrochemical companies play a crucial role in the development and progress of a nation, especially in a country like Vikshit Bharat, where there is a growing need for infrastructure, energy, and industrialization. They are chemicals derived from petroleum or natural gas, and they serve as the building blocks for a wide range of products that are integral to various sectors of the economy. Firstly, petrochemical companies contribute significantly to the industrial growth of Vikshit Bharat by providing essential raw materials for manufacturing processes. These raw materials are used in the production of plastics, fertilizers, pharmaceuticals, textiles, and other goods. By

ensuring a steady supply of these materials, petrochemical companies support the expansion of industries across the country, thereby creating employment opportunities and stimulating economic growth. Secondly, petrochemical companies play a vital role in the energy sector of Vikshit Bharat. Furthermore, petrochemical companies contribute to the development of infrastructure in Vikshit Bharat by providing materials for construction projects.

The chemical industry, a vital part of the Indian economy which covers a diverse range of over eighty thousand commercial products meeting basic needs and is both a knowledge intensive as well as capital intensive industry employing over two million people. The backbone of industrial and agricultural development in the country, the industry enhancing the quality of life providing building blocks for several downstream industries such as textiles, papers, paints, varnishes, soaps, detergents and pharmaceuticals. derived from crude oil and natural gas, petroleum gases, naphtha, kerosene and gas oil which are fractions produced from crude oil by refining process. Ethane, propane and liquid hydrocarbons obtained from natural gas constitute other feedstock used in the petrochemical industry. Performing the important role

of enabler, the petrochemical industry has immense potential and is responsible for significant value additions catering to innumerable products required in practically every sector of the Indian industry and to basic needs and household items. Global production of Plastic which consist of polymers has been growing and packaging, building and construction, and automotive emerging as the top three markets for plastics. Demand for Plastics, the most used Petrochemical, has overtaken other bulk materials like steel, aluminium and cement. The biggest challenge in Petrochemicals continues to be availability of indigenous supply of feedstock, the cost of which is the largest component of its production cost.

The Middle East and the United States have an edge in this respect with access to low-cost ethane owing to rich natural gas supplies leading to a significant contribution from standalone petrochemicals assets. In India on the other hand, a major proportion of the petrochemicals capacity continues to be by way of refinery integration, a key source of cost competitiveness over the past decade. India is the third largest consumer of polymers and has the sixth largest sales of chemicals in the world. Demand for chemical products is expected to grow at approximately 9% p.a. during 2020- 25.

BCPL's Aspiration in the Role of Viksit Bharat:

BCPL is proactively working towards a sustainable long-term growth. These transformative growth outlook include strengthening the current polymer business and identify new strategic business for diversifications in the coming days. At present two value addition projects are already under progress and are expected to be completed by 2025. The first step of the phase wise growth plan will include capacity enhancement of the present petrochemical complex to increase product basket based on the commitments of feedstock supply. BCPL has successfully obtained BIS certification for PE grades. BCPL performing the Extended Producer Responsibility as a brand owner as per Plastic Waste Management Rules. The company is an ISO 50001:2018 (Energy Management System), ISO 9001:2015 (quality), ISO 14001:2015 (environment) and ISO 45001:2018 (occupational health and safety) certified company. It has successfully obtained BIS certification for PE grades. BCPL performing the Extended Producer Responsibility as a brand owner as per Plastic Waste Management Rules. It has developed indigenous vendors as a part of Atmanirbhar Bharat Abhiyan. The company has complied with the Process Safety Management and Behavioural Based Safety. BCPL has also successfully Implemented SAP oriented Production Planning (PP) & Plant Maintenance (PM) Modules.

The state of Assam shares its border with all the north-eastern states in India and internationally

with Bangladesh and Bhutan. Connecting the state with major cities of the country and with nearby international cities it has six airports. The Government of India plans to develop 23 river systems for cargo and passenger vessel movement, aiming for greater use of inland waterways as Brahmaputra Cracker and Polymer Limited cheaper mode of transport. Sharing the longest stretch of the India-Bhutan border, BCPL's product market is not only defined to Indian region but also found its way into Bhutan and Bangladesh and is expected to witness the same in Myanmar, heading in the course of ACT-EAST policy. The Government has taken steps to make Dibrugarh a major river port which will go a long way to promote trade and commerce not only in Dibrugarh but also in the entire Northeast. Development of the port will also enhance connectivity to neighbouring Bangladesh through National Waterways 2 besides providing an opportunity to reach markets in different parts of the world. The use of waterways will provide economical, environment friendly and seamless transport of cargo and heavy machineries for up-coming projects in the region. The state has access to trained manpower through numerous engineering related institutes including CIPET, IIT and Plastic Waste Management Centre.

BCPL Is committed towards a green path :

BCPL adopted the green initiative with respect to waste management by using it's high calorific value waste in co-processing in nearby cement industries. It has taken the initiative to study and access the

target year towards NETZERO emission. Online monitoring stations for continuous emission monitoring station, ambient air quality monitoring station, waste waster quality monitoring station are in line to strictly monitor the pollutants parameters well with the limit. Some voluntary parameters are also included for monitoring. It has executed the environment friendly project by converting hydrogenated pygas -1 to value added product hydrogenated pygas -2 by reducing benzene content and increasing octane no. of the same.

As a remarkable achievement, BCPL won FICCI Chemicals and Petrochemicals Award 2023 in the category of Corporate Environment Responsibility, GEEF global environment award 2024 and "India's Best Company Award of the Year 2022 recently.

BCPL conducted different district level awareness program conducted with huge participants along with the first Industrial Meet on 'Environment Management System' among all the industrial players to exchange the best practices towards sustainability.

Promoting Business Eco System

After the successful commissioning and operation of the petrochemical complex for last eight years, BCPL is proactively working towards a sustainable long-term growth. These transformative growth outlook include strengthening the current polymer business and identify new strategic business for diversifications in the coming days. At present two value addition projects are already under progress and are expected to complete by early next year.

The first step of the phase wise growth plan will include capacity enhancement of the present petrochemical complex by forty percent to include downstream polymer derivatives in the product portfolio. There is also plan to have C1 value chain integration to the present product slate. Keeping in pace with the transformation in the Business Eco -system BCPL would like to diversify and go on adding newer molecules of the speciality and niche chemical segment in the product basket as per the market .It is worth mentioning here that BCPL is dedicated to reduce its carbon foot print via CO2 valorisation projects and already talks are on with agencies for assessment of carbon credit from similar projects which BCPL may implement in the coming days. The initiatives are some of the promising options available with BCPL a part of the comprehensive road map for its growth and development.”

Furthermore, BCPL is actively involved in corporate social responsibility initiatives aimed at addressing environmental concerns, supporting local communities, and promoting education and healthcare. By investing in social welfare programs, BCPL has demonstrated their commitment to sustainable development and contribute to the overall well-being of society. In conclusion, BCPL play a crucial role in the development of Vikshit Bharat by providing essential raw materials, energy, and infrastructure for industrialization, agriculture, and other sectors of the economy contributing to the progress and prosperity of the nation. However, it is essential for these

companies to adopt responsible business practices and prioritize environmental protection and social welfare to ensure long-term sustainable development in Vikshit Bharat.

The Company has contributed to society through its CSR initiatives in the areas of healthcare, hygiene, education, infrastructure development & environment, literacy enhancement to the extent possible. CSR activities were initiated in the FY 2020-21 and the same are being done for the years 2021-22, 2022-2023 and 2023-2024. Enhancement of health care facilities of nearby hospitals/health centres in the nearby areas were facilitated to access to better medical services. BCPL also Associated with Nikshay Mitra Yojana, an initiative towards making India a TB free nation and providing Nutritional Baskets to patients in the state. Provision of ambulances in colleges, rural areas and public health centres and patients with eye diseases timely conveyance to the hospitals during emergency. In the areas of education BCPL has also provided desk benches, stand fans, Smart boards in the nearby Secondary/Higher Secondary Schools Undertaking infrastructure development works of Library. Facilitating transportation means in the rural areas by constructing paver blocked roads .Assisting the homeless, old, aged citizens as well as orphans with homes by construction of accommodation building . In the areas of Sports Uplifting the sports facility in Dibrugarh .Creating employment opportunities through adoption of aquaculture and animal husbandry farming, integrated farming, in the nearby villages

of Dibrugarh. Empowerment of women folk through Handloom Weaving, Tailoring and Embroidery & Handicraft, Mushroom Cultivation. Moreover, BCPL is also focussing in the development of the Aspirational Districts under its CSR schemes aiming to enhancement of the livelihoods of the region such as creating employment opportunities for the economically challenged youths of Baksa, Udalguri and Dhemaji in the areas of Hospitality and Tourism.

The nation is on the brink of its 100th year of independence. Under the leadership of Prime Minister Narendra Modi, the Union Government has introduced 'Vision Viksit Bharat@2047,' envisioning India as a superpower. It is the current government's roadmap to making India a developed nation by 2047. The Prime Minister said that in the life of any nation, history provides a time period when the nation can make exponential strides in its development journey. For India, “This Amrit Kaal is ongoing” and “this is the period in the history of India when the country is going to take a quantum leap”. The PM of India dreams that unlike nearby countries that took such a quantum jump in a set timeframe and turned into developed nations. “ For India, this is the time, right time (Yahi Samay hai, Sahi Samay hai)”, he said, adding that each and every moment of this Amrit Kaal should be utilized. BCPL will continue to be driven by the emerging opportunities and guided by the vision of Honourable Prime Minister of India of becoming ‘Viksit Bharat @2047’■

Electronics Corporation of India Limited



1. Electronics Corporation of India Limited (ECIL) is a Public Sector Enterprise setup under the Department of Atomic Energy on 11th April 1967 with a view to generate a strong indigenous capability in the field of professional grade electronics. The initial objective was on self-reliance to meet the Control and Instrumentation requirements of country's Nuclear Power Programme. ECIL was engaged in the Design, Development, Manufacture and Marketing of several products with emphasis on three technology lines viz. Computers, Control Systems and Communications. Over the years, ECIL pioneered the development of various complex electronic products and scored several 'firsts'. Prominent among them being country's 'First Digital Computer', 'First Control & Instrumentation of Nuclear Power Plants', 'First Earth Station Antenna', 'First Programmable Logic Controller', 'First Solid-State Cockpit Voice Recorder', 'First Electronic Voting Machine' etc.

2. Though the initial thrust was on meeting the C & I requirements of the Nuclear Power Program, the expanded scope of self-reliance pursued by ECIL enabled the company to develop various products to cater to the needs of Defence, Space, Civil Aviation, Information & Broadcasting, Telecommunications, Insurance,

Banking, Police, Para-Military Forces, Oil & Gas, Power, Education, Health, Agriculture, Steel and Coal sectors. ECIL has thus evolved as a multi-product company serving multiple sectors of Indian economy with emphasis on import substitution and development of products/services that are of economic and strategic significance to the country.

3. ECIL's state-of-the-art infrastructure, manufacturing and quality processes ensure systems meet the varied requirements of Defence, Nuclear and Aerospace. All the business divisions of ECIL are certified for ISO 9000:2015 Quality Management System and the company is certified for ISO 14001:2015 Environmental Management System and ISO 45001:2018 for Occupational Health and Safety.

4. The Vision of the corporation is "To contribute to the country in achieving self-reliance in Strategic Electronics".

Business Functions

5. The main function of ECIL is to develop and promote strategic electronic products and systems with indigenous know how to attain self-sufficiency in following areas steered through respective Business Verticals.

Nuclear Sector

6. ECIL was primarily created

to support the Nuclear Power Programme of the Department of Atomic Energy (DAE). Its contribution to the nuclear sector has been dependent upon DAE's plans and thus works with the strategic Nuclear programmes. ECIL has been supplying control and instrumentation, radiation monitoring, detection systems and several safety and process control systems for nuclear power plants in the country since four decades.

7. The developments undertaken in control and instrumentation have also found extensive use in thermal power plants and more importantly in international science programmes such as Large Hadron Collider project at CERN, Switzerland and recent projects at International Thermonuclear Experimental Reactor (ITER), France and the Facility of Antiproton and Ion Research (FAIR), Germany. The company would be actively involved in Country's nuclear power plant upgrade programs and after sales services.

Defence Sector

8. The spin-offs of the technologies pioneered and the products developed enabled the company to meet some of the requirements of various users in defence sector. ECIL has been playing a significant role in supplying a wide range of professional grade components, equipment and

integrated strategic systems to the defence forces for meeting their requirements. These products include Secure and Jam-resistant communication equipment, Electronic Warfare Systems, Simulators, Communication Intelligence & Interception Systems, Antennas, SATCOM Systems, Stabilized platforms for Air Borne Radars, C4I and Missile Ground Support Systems, Electronic Fuzes, Inertial sensors and actuators.

9. Because of its size and diversity, this sector has been accounting for the bulk of the company's turnover. With the in-house competencies developed in the technologies relating to defence electronic systems the company has favourably positioned itself to offer integrated solutions like Missile Systems, Electronic fuzes and Electronic Warfare Systems.

Aerospace Sector

10. The company continues to be the largest supplier of Satellite Earth Stations to cater for Telemetry, Tracking, Command and Ranging (TTCR) operations of Mission Control Facilities under ISRO and BSNL. The company is also supplying 11M, 9.1 M and 7.5 M antenna for various space and satellite applications for National Space programs. The company caters for various gyros, actuators and Solid State cockpit voice recorders requirements for airborne applications of Indian Military.

Homeland Security Sector

11. The successful design, supply, installation and commissioning of the complex Integrated Security Systems to sensitive installations (like the Parliament House, PMO

and PMR), has established the company's credentials in the Security sector which has resulted in the company being chosen for implementing the Video Surveillance system at courts and various cities. ECIL is currently executing projects on access control systems and Integrated Security solutions for vital installations of the country. The company has developed expertise in Automatic Messaging Systems and has been specifically chosen to implement these solutions for Airport Authority of India.

12. The company is also a major supplier of communication jamming equipment and would be meeting the requirement of the police and paramilitary forces for mobile jammers. The company supplied communication jammers also find their presence at several prisons across the country. The Company has diversified its product profile to manufacture and supply of Smart Energy Meters to various State Electricity Boards.

IT, Telecom & E-Governance Sector

13. The company has significant expertise in IT, networking and communication technologies, information security and surveillance technologies to offer total IT based solutions for defence, transportation, security, telecom, e-Governance and the rural sector. The company is an established provider of encryption products and solutions for Indian Armed Forces. The Company has established secure manufacturing facility to cater to manufacturing of EVM and VVPAT. ECIL is currently working towards

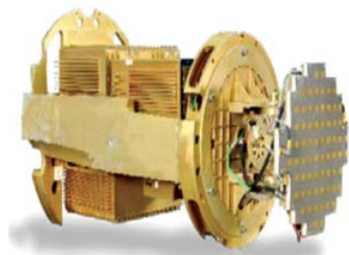
meeting the requirements of EVM's and VVPATs for Election Commission of India and other state & local election bodies. As a Public Enterprise, the company has also taken up the responsibility to develop and deliver IT solutions in the areas of Healthcare, Education and Agriculture also.

Innovations and R&D

14. ECIL's R&D Policy is focused on advancing products, processes, and technologies to align with its vision of aiding the country in achieving self-sufficiency in strategic electronics. The policy highlights key elements that support this vision, such as developing indigenous technologies to gain autonomy and combat technology dependence. By investing in in-house R&D and fostering the creation of intellectual property, ECIL aims to boost value addition, improve competitiveness, strengthen its brand and lead in technological innovation. Additionally, the company collaborates with national laboratories and institutes to assimilate cutting-edge technologies, promote innovation for sustainable development, and bridge technology gaps.

15. **Significant recent achievements towards Self Reliance. Some of the Recent achievements include: -**

- X-Band RF Seeker –



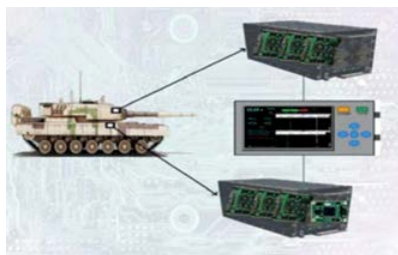
The X-Band RF Seeker, developed in collaboration with BARC and DRDO, enhances precision strike missile effectiveness. After captive flights and trials, the missile with the indigenous Seeker was successfully tested from sea platform.

• **Ku Band Airborne SATCOM Terminal –**



A Stabilisation and pointing system for datalink has been developed and supplied for TAPAS Unmanned Aerial Vehicle program. The Airborne SATCOM Terminal (AST) was developed in collaboration with BARC. In spite of dynamic motion of UAV, the KU band AST ensures continuous pointing towards the designated Satellite. TAPAS has successfully completed its first flight trials for functional evaluation.

• **Integrated Power Management System (IPMS) -** Successfully designed and developed IPMS for efficient power load management of next Generation Battle Tank for the Indian Army.



• **C4I systems -** Indigenous Command Control Communication, Computer and Intelligent

(C4I) systems, check out systems and simulators delivered to Armed Forces for missile programs.



• **Deep Space Network Antenna.** The 32- meter-Deep Space Network Antenna for India's first Moon Mission (Chandrayaan-1) and Mars Orbiter Mission (Mangalyaan) was designed in collaboration with BARC, manufactured and commissioned by ECIL is the first of its kind to be built in India.



The same antennae facilitated the vital communication support for Chandrayaan 3 mission and will find application in the Aditya L1 Mission also. Further, ECIL in association with BARC has designed, developed, manufactured and commissioned the first of its kind fully indigenous 18 meter monopulse earth station antenna tailored to bolster both current and future interplanetary missions of ISRO's Aditya Mission

• **Chemical, Biological, Radiological and Nuclear Detection (CBRN) Solution –** CBRN protection system integrates surveillance, detection, incident notification, onsite agent

identification, sample collection, laboratory investigation, incident confirmation and withdrawal towards safeguarding vital establishments and personnel against CBRN threats.

• **Single Board Computer –** ECIL in collaboration with BARC developed indigenous VME CPU boards to address obsolescence, import restrictions and ensuring product support for end customers.



Corporate Social Responsibility

16. Corporate Social Responsibility in ECIL is a continuous commitment to act and operate in an ethically, economically, socially and environmentally sustainable manner and contribute to the harmonious and sustainable development of society and the planet through business, while improving the quality of life of the community and the society.

17. The objective of Corporate Social Responsibility (CSR) in ECIL is to create value for the stakeholders & society that is fundamentally linked to ECIL's core business strategies and operations through its services, conduct & initiatives for their sustainable development. Thrust areas identified for CSR activities are:

• Mitigation of hunger and poverty through livelihood

- promotion/ augmenting income generation.
- Promoting health care including preventive health care; Sanitation and making available Safe Drinking Water.
 - Promoting Education by building physical infrastructure, value education and enhancing vocational skills.
 - Protection of national heritage, art and culture. Rural Development Projects.
 - Environmental Sustainability measures
18. Sustainability is considered as integral part of the business at ECIL. The Company identified

Water Conservation, Energy Conservation, Waste Management and Bio-diversity & Green Cover as major thrust areas towards Sustainable Development efforts. The Environmental Management Systems of the Company are certified under ISO 14001:2015. Accordingly, ECIL has taken the following steps towards environmental sustainability -

- Channelising the e-waste, Batteries, plastics and used oils to CPCB registered authorized vendors through MSTC online e-auction.
- Planting of trees as part of the Haritha Haram programme.
- Recharging rainwater through rainwater harvesting pits with injection bore wells

- Installation and Commissioning of 500 KVA solar Power plant

Corporate Governance

19. ECIL is committed to upholding principles of corporate governance to effectively navigate the demands of a dynamic business environment. By prioritizing transparency and adherence to ethical values, the company seeks to enhance its operational efficiency and achieve sustainable success. Through a focus on corporate governance best practices, ECIL aims to ensure that its business activities are conducted with integrity and accountability, ultimately contributing to the company's growth and long-term success. ■

Empowering India Through Innovation: Viksit Bharat



In a resounding testament to India's commitment to fostering innovation and sustainable development, the recent International Symposium on Technology Transfer - Commercializing Intellectual Property for a Sustainable Future, held on 14th March, 2024, showcased the nation's strides towards a Viksit Bharat – a Developed India. Organized by the National Research Development Corporation (NRDC), in strategic collaboration with esteemed partners such as the United States Patent and Trademark Office (USPTO), the Department for Promotion of Industry and Internal Trade (DPIIT), and others, the symposium served as a pivotal platform for multidisciplinary stakeholders to converge and

deliberate on strategies to drive innovation and technology transfer in green technologies.

The symposium, attended by scientists, technocrats, government policymakers, industry executives, and more, underscored the indispensable role of startups in advancing green technology initiatives. Through compelling case studies and insightful discussions, the event emphasized the importance of promoting an IP culture and encouraging the participation of women entrepreneurs in the journey towards sustainable development.

Highlighting successful endeavors in innovation and technology transfer, the symposium showcased tangible outcomes and real-world

impact, inspiring participants to harness the power of innovation for sustainable growth. Additionally, key agreements and partnerships were forged with various stakeholders signifying a collaborative approach towards fostering a robust ecosystem for entrepreneurship and sustainable development.

As India continues to prioritize green technologies, initiatives like the International Symposium on Technology Transfer serve as catalysts for progress, driving the nation towards a more sustainable and prosperous future. With a collective commitment to innovation, entrepreneurship, and sustainable development, India is poised to emerge as a beacon of progress and prosperity on the global stage – a true Viksit Bharat. ■

SCOPE News

200th Meeting of SCOPE Executive Board held



Shri Sandeep Kumar Gupta, Chairman, SCOPE; Shri Atul Sobti DG, SCOPE and Members of SCOPE Executive Board during the 200th Board Meeting of SCOPE.

The 200th Meeting of SCOPE Executive Board was organised on 07th March, 2024. Shri Sandeep Kumar Gupta, Chairman, SCOPE chaired the meeting that deliberated on numerous initiatives and activities undertaken by SCOPE over the past few months and the way ahead for the future.

The Chairman, SCOPE asked the board to continue undertaking steps for making SCOPE a vibrant and dynamic body, committed to make Public Sector Enterprises globally competitive.

While addressing the meeting, Chairman, SCOPE said that the past few months have been very eventful for the Apex Body. SCOPE successfully organised SCOPE Awards presentation ceremony wherein Hon'ble Vice-President of India presented the SCOPE Awards and commended the role of Public Sector.

He further informed about

ambitious leadership development program being developed by SCOPE in association with Capacity Building Commission, progress towards SCOPE's Social Interaction Centre and SCOPE's project on Decarbonisation & Climate Change.



Shri Sandeep Kumar Gupta, Chairman, SCOPE addressing the 200th Board Meeting of SCOPE.

Shri Atul Sobti, DG, SCOPE, while addressing the meeting, mentioned about various initiatives being undertaken by SCOPE in the areas of public policy, skill development and brand building of PSEs. He also informed about various workshops and programs organised by SCOPE for capacity enhancement of executives of PSEs.

He further briefed about SCOPE activities including SCOPE's representation at various national and international forums, SCOPE nomination in prestigious National Committees and Boards of Government of India, signing of MoUs with esteemed organisations etc.

Various initiatives of SCOPE in the areas of climate change, women empowerment, corporate governance, technology & innovation, etc. were also discussed during the meeting.

SCOPE's 'National Meet on RTI Act' organised in Shillong

Taking its capacity building endeavour to the North Eastern region of the country, SCOPE organised its 'National Meet on Right to Information (RTI) Act' on 1st and 2nd March, 2024 in Shillong, Meghalaya. The meet was addressed by Shri Heeralal Samariya, Chief Information Commissioner, CIC; Shri H. Nongpluh, State Chief Information Commissioner, Meghalaya; Shri Atul Sobti Director General, SCOPE and Senior officials of Govt. of India, Govt. of Meghalaya and PSEs. Attended by over 80 participants from 34 PSEs, the meet brought together participants from across the country.

Shri Heeralal Samariya interacting with the participants said that the intention of the Right to Information Act is to foster transparency and accountability in governance. Commending the large participation in SCOPE's workshop, he asserted that though RTI is a small Act, it is the most powerful Act. He further advised officials to facilitate information to the Public as it is their right, and be up-to-date in displaying their information in the public domain.

Shri H. Nongpluh spoke about how RTI is one of the most empowering Acts and the mindset of the Public Information Officer (PIO) is pivotal and they must be prompt in giving replies of RTIs. He also emphasised that such programs must be



(L-R) Shri Atul Sobti, DG, SCOPE; Shri Heeralal Samariya, Chief Information Commissioner, CIC; Shri Uttam Lal, Director (Personnel), NHPC Limited and Shri O.P. Khorwal, Programme Director & Facilitator during the 'National Meet on RTI Act' in Shillong.

organized frequently to create better awareness about the Act. Shri Atul Sobti in his address shared that SCOPE decided to organize this National Meet in Shillong due to the rising prominence of the city, as it takes steps towards becoming a Smart City. Calling RTI the most unique, vital and empowering legislation, DG, SCOPE emphasised that the idea to conduct this meet across various regions was to facilitate more clarity, inform and deliberate on

the various provisions of RTI. Addressed by a unique mix of Government representatives and faculty, the interactive meet was another step by SCOPE to take its capacity building endeavour to different regions of the country, through workshops on pertinent topics ranging from Corporate Governance, Climate change to Women empowerment, Leadership, Digital transformation etc. SCOPE has previously held National RTI Meets in Leh, Ladakh and Lucknow.



Participants during the 'National Meet on RTI Act' in Shillong.



Glimpses of SCOPE's 'National Meet on RTI Act' held in Shillong





SCOPE enters into tripartite MoU with Textile Committee, Ministry of Textiles and GeM



Shri S. P. Verma, Secretary, Textiles Committee, Ministry of Textiles; Shri Ajit B. Chavan, Additional CEO, GeM, and Shri Shubh Ratna, General Manager, (Tech. & HR), SCOPE signed the MoU in the presence of Smt. Darshana Vikram Jardosh, Hon'ble Union Minister of State for Textiles and Railways; Smt. Rachna Shah, Secretary, Ministry of Textiles; Shri Prashant Kumar Singh, CEO, GeM and Smt. Prajakta L. Verma, Joint Secretary, Ministry of Textiles and other senior officials from Ministry of Textiles and GeM in New Delhi.

SCOPE signed an MoU with Textiles Committee, Ministry of Textiles and Government e-Marketplace (GeM) on 28th February, 2024 during Bharat Tex 2024 held at Bharat Mandapam, Pragati Maidan in New Delhi. The MoU was signed by Shri S. P. Verma, Secretary, Textiles Committee, Ministry of Textiles; Shri Ajit B. Chavan, Additional CEO, GeM, and Shri Shubh Ratna, General Manager, (Tech. & HR), SCOPE in the presence of Smt. Darshana Vikram Jardosh, Hon'ble Minister of State for Textiles and Railways;

Smt. Rachna Shah, Secretary, Ministry of Textiles; Shri Prashant Kumar Singh, CEO, GeM and Smt. Prajakta L. Verma, Joint Secretary, Ministry of Textiles during Bharat Tex 2024 held at Bharat Mandapam, Pragati Maidan in New Delhi. The tripartite MoU was signed with the common objective of promotion of Public Procurement of upcycled products by CPSEs. Upcycling essentially means repurposing textile waste and scrap to extend its life cycle. Through upcycling, discarded items are transformed into new

products of greater value and functionality.

Sustainability and Circularity in the Textile Value Chain are essential to minimise the adverse effects of the linear supply chain.

Unlike recycling, which breaks down materials to their base state to create new products; upcycling creatively reuses existing materials without altering their basic structure, thereby, significantly reducing the energy, chemical, and water consumption of the process as well as their impact on the environment.

SCOPE organises Public Procurement Workshop in Shillong

Chairperson, CCI inaugurates the workshop with large participation.

SCOPE organised a workshop on 'Public Procurement- Issues and Challenges and Sharing of Experiences of Best Practices,' from 29th February to 1st March, 2024 in Shillong, Meghalaya. The workshop was inaugurated by Smt. Ravneet Kaur, Chairperson, Competition Commission of India (CCI) in the presence of Ms. Anupama Anand, Secretary, CCI and Shri Atul Sobti, Director General, SCOPE. Senior officials from CCI, GeM and various PSEs across the country were also present. The meet was attended by 85 participants of 31 PSEs from diverse sectors.

In her inaugural address, Smt. Ravneet Kaur said that amidst globalisation, the need for a robust market system that supports competition and also discourages any anti-competitive practices has been magnified, and the aim of Competition Law is to create an ecosystem where competition thrives. Emphasizing on the economic and social significance of Public Procurement, she complimented SCOPE for organizing the workshop on this pertinent subject.

Ms. Anupama Anand in her address said that the role of Public Procurement is multifaceted and signified that such workshops are catalysts in propelling organizations towards a more efficient, transparent and innovative public procurement landscape.



(L-R) Shri Atul Sobti, DG, SCOPE; Smt. Ravneet Kaur, Chairperson, CCI; Ms. Anupama Anand, Secretary, CCI and Shri S.J. Ahmed, Executive Director (Corp Materials Management Group), SAIL during the workshop in Shillong.



Participants from different PSEs along with dignitaries during the workshop in Shillong.

Shri Atul Sobti in his address said that Public Procurement facilitates a transparent and efficient governing system, and seeing the sheer value and volume of procurement, its role cannot be underestimated. He further highlighted SCOPE's continued endeavour to conduct workshops on pertinent subjects across the

country. The workshop also saw presentations and deliberations by CCI; GeM Representatives and was enthusiastically participated by senior officials of various PSEs. SCOPE has over the years expedited its efforts towards conducting regular workshops on pertinent topics, across diverse regions of the country.

Glimpses of SCOPE's Workshop on Public Procurement held in Shillong





SCOPE - GIZ, Germany organise workshop on 'Decarbonisation of India's PSEs and the Role of Green Hydrogen'



(L-R) Shri Atul Sobti, Director General, SCOPE; Dr. Stephan Hesselmann, Minister Counsellor, Economic Affairs, German Embassy; Shri Ajay Yadav (IAS), Joint Secretary, Ministry of New and Renewable Energy (MNRE); Shri Sandeep Kumar Gupta, Chairman, SCOPE & CMD, GAIL (India) Ltd.; Ms. Ruchika Drall, Deputy Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC); Shri Farhad Vania from GIZ during the workshop in New Delhi.

Understanding the emergence of Green Hydrogen as an alternative fuel is driven by its potential to address climate change, achieve decarbonization goals, enhance energy security, and stimulate economic development. Standing Conference of Public Enterprises (SCOPE), India in association with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany, organised a Workshop on "Decarbonisation of India's Public Sector Enterprises and the Role of Green Hydrogen" on 12th March 2024 at SCOPE complex, New Delhi. The objective of the Workshop was to sensitize about various ways of decarbonisation

with a focus on Green Hydrogen, its techno-commercial aspects, and financing options for related projects.

The inaugural session aimed to set a positive tone, build enthusiasm, and create a sense of community among participants with regard to Green Hydrogen. Shri Ajay Yadav (IAS), Joint Secretary, Ministry of New and Renewable Energy (MNRE); Dr. Stephan Hesselmann, Minister Counsellor, Economic Affairs, German Embassy; Shri Sandeep Kumar Gupta, Chairman, SCOPE & CMD, GAIL (India) Ltd.; Ms. Ruchika Drall, Deputy Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC);

Shri Farhad Vania from GIZ and Shri Atul Sobti, Director General, SCOPE addressed the Inaugural Session.

During the opening address, Shri Atul Sobti, while highlighting the staggering contribution of PSEs to the national economy and employment generation also underlined the green initiatives of the PSEs despite of their presence in hard to abate sectors. Reiterating the need for PSEs to explore alternative resources so as to reduce carbon emission without compromising on commercial prudence, he added that PSEs need to be exposed to the novel & alternate energy sources such as the Green

Hydrogen to encourage them to align their decarbonisation efforts with the national climate action agenda. Pronouncing the commitment of SCOPE in this regard, Shri Sobti highlighted the SCOPE-GIZ collaboration and also various works undertaken in the same.

Mr. Farhad Vania, Senior Portfolio Manager, GIZ India, providing the 'Program Perspective' commended the efforts of PSEs and also highlighted the role of PSEs in "Viksit Bharat 2047". He went on to explain the particular interest of German Government in various initiatives of India in decarbonisation which has led to a strong India-Germany cooperation.

He said that "the government of Germany has been quick to recognize what is going to power India to 2047. It has to be something to do with energy and that's why energy remains one of the big areas of bilateral cooperation between India and Germany." Moving on to outlining the structure of the Workshop, he assured effective and constructive engagement of GIZ with SCOPE.

Speaking on the occasion, Dr. Stephan Hesselmann, Minister Counsellor – Economic Affairs, German Embassy, besides highlighting complex issues related to climate change, common intentions of advancing to energy transition, recent collaborative climate action efforts taken by Indian and German Governments, he also emphasized how Green Hydrogen can replace the use of fossil fuels in various sectors and assured constant support from Germany in this regard.

He also reiterated the German ambassador's words – "In all our efforts against climate change, one thing is clear in fighting climate change the world cannot do without India and India cannot do without its Public Sector Enterprises."

During the address, Shri Sandeep Kumar Gupta, Chairman, SCOPE & CMD, GAIL (India) Ltd. mentioned that CPSEs are working to facilitate demand creation through domestic utilization of Green Hydrogen and highlighted initiatives from several PSEs in this area. He also pointed out the need of undertaking techno-commercial studies by PSEs operating in hard-to-abate sectors of the economy. He appreciated SCOPE-GIZ collaboration by saying "I am glad that SCOPE has recognized this concern and collaborated with the GIZ for this important project with the aim to identify sustainable decarbonization efforts thereby providing PSEs with practical solutions."

Giving the Government perspective, Shri Ajay Yadav (IAS), Joint Secretary, Ministry of New and Renewable Energy (MNRE) said that the electrification of every possible industry will lead to the demand creation for renewable and alternate sources of energy including Green Hydrogen. Highlighting the role of Green Hydrogen, he said that it has emerged as a fuel of the future because it can be used for industries where there is a limit to electrification and where the fossil fuels are used as feed stocks. He also took the opportunity to highlight various initiatives of the Government of India in this regard key being National Green

Hydrogen Mission (NGHM) which would go a long way in creating a Green Hydrogen ecosystem across the country for the successful implementation of the mission.

Ms. Ruchika Drall, Deputy Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC) highlighting the importance of India in the global forum said that the country is currently at a very crucial juncture in terms of the energy landscape due to its growing energy needs which is required to fuel its developmental activities. Highlighting the importance of non-conventional resources, she said that use of conventional energy sources that release abundant greenhouse gases could be devastating for the environment and hence, transition to clean technologies and processes is going to be very vital for meeting India's climate goals and tackling climate change. She also emphasised on the significant economic and social impacts and these implications can actually be termed as co-benefits.

During the session, the dignitaries also unveiled a study on "Decarbonising India - Potential for Electrification across India's Economy & Assessment of Electricity Needs", commissioned by GIZ's Indo-German Energy Forum Support Office (IGEF-SO).

More than 300 participants from 45 PSEs attended the workshop, both physically and virtually.

The details of select session of workshops have been summarised by Ms. Jasprit Kaur, Climate Change Advisor, GIZ India on Page No. 102.

International Women's Day celebrations at SCOPE

International Delegation from V. V. Giri National Labour Institute joins SCOPE's Women's Day celebrations.



DG, SCOPE along with international delegates and women employees of SCOPE during International Women's Day celebrations at SCOPE Complex in New Delhi.

SCOPE observed the International Women's Day at SCOPE Complex, New Delhi on 8th March, 2024. An international delegation from V. V. Giri National Labour Institute (VVGNI)

comprising of delegates from 25 countries joined the SCOPE's Women's Day celebrations. While speaking on the topic of 'Enhancing productivity through improving work culture', Shri

Atul Sobti, DG, SCOPE shared that "Work culture is an outcome of attitude, belief and behaviour, coupled with the values and policy of the organisation. If the work culture at the organisation is



DG, SCOPE addressing international delegates on the occasion of International Women's Day.



good, productivity and efficiency of the employees can be doubled.” He further added that there is a need to bring the employees to engage with the organisation. Employee engagement surveys should be conducted. Good work culture also improves the engagement of the employees, he emphasized.

Deliberations between SCOPE and International delegates saw the sharing of experiences with regard to work culture, employee engagement among others. Calling women ‘multifaceted’ and the ‘embodiment of strength and exuberance’, DG, SCOPE exhorted upon all women employees of SCOPE

to give their best and transcend to newer heights of success. He encouraged them to undertake newer challenges, innovate while unleashing their true potential. He further reiterated the need for women to look after their overall wellness, as part of striking the right balance between work and family.

Personalia



Shri B. Sairam
assumes charge as CMD,
Northern Coalfields Limited.



Shri Shivendra Nath
CMD, Engineering Projects India Ltd.
assumes additional charge as CMD,
Hindustan Salts Ltd. & Sambhar Salts Ltd.



Shri Mundkur Shyamprasad Kamath
assumes charge as MD,
Mangalore Refinery and
Petrochemicals Limited.



Shri Ravindra Kumar
assumes charge as
Director (Operations),
NTPC.



Ms. Rashmi Govil
assumes charge as
Director (HR),
Indian Oil Corporation Ltd.



Shri Biranchi Das
assumes charge as
Director (Personnel),
South Eastern Coalfields Limited.

SCOPE in Media

The Indian EXPRESS

WOMEN'S DAY—SCOPE

SCOPE observed the International Women's Day at SCOPE Complex, New Delhi. Atul Sobti, DG, SCOPE calling women 'multifaceted' & the 'embodiment of strength & exuberance', exhorted them to give their best and transcend to newer heights of success. The celebrations were joined by International delegates from 25 countries as part of VVGNLI program.



daily Excelsior

International Women's Day celebrated across J&K, Ladakh

Standing Conference of Public Enterprises (SCOPE) observed the International Women's Day at SCOPE Complex, New Delhi. Atul Sobti (Director General, SCOPE) calling women 'multifaceted' and the 'embodiment of strength and exuberance', exhorted them to give their best and transcend to newer heights of success. The celebrations were joined by International delegates from 25 countries as part of VVGNLI program.

THE FREE PRESS JOURNAL

International Delegation joins SCOPE's Women's Day celebration



Standing Conference of Public Enterprises (SCOPE) observed the International Women's Day at SCOPE Complex, New Delhi. Atul Sobti, Director General, SCOPE calling women 'multifaceted' and the 'embodiment of strength and exuberance', exhorted them to give their best and transcend to newer heights of success. The celebrations were joined by International delegates from 25 countries as part of VVGNLI program.

THE FREE PRESS JOURNAL

SCOPE - GIZ, Germany organize workshop on 'Decarbonisation of India's PSEs and the Role of Green Hydrogen'



Taking its Green Skilling endeavour to the next mile, Standing Conference of Public Enterprises (SCOPE) in association

with GIZ, Germany organized a Workshop on 'Decarbonisation of India's Public Sector Enterprises and the Role of Green Hydrogen' at SCOPE Complex in New Delhi. The inaugural session was addressed by Shri Ajay Yadav (IAS), Joint Secretary, Ministry of New and Renewable Energy (MNRE); Dr. Stephan Hesselmann, Minister Counsellor, Economic Affairs, German Embassy; Shri Sandeep Kumar Gupta, Chairman, SCOPE & CMD, GAIL (India) Ltd.; Ms. Ruchika Drall, Deputy Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC); Shri Farhad Vania from GIZ and Shri Atul Sobti, Director General, SCOPE.



International Delegation joins SCOPE's Women's Day celebration

The Shillong Times

Workshop talks hurdles for public procurement

By Our Reporter

SHILLONG, Feb 29: Delving deep into what challenges surround public procurement, Standing Conference of Public Enterprises (SCOPE), an apex body of Public Sector Enterprises (PSEs), organised a workshop titled 'Public Procurement - Issues and Challenges and Sharing of Experiences of Best Practices' here on Thursday. It was inaugurated by Chairperson, Competition Commission of India (CCI), Ravneet Kaur, in the presence of Secretary, CCI, Anupama Anand, and Director General, SCOPE in Shillong, Meghalaya, Atul Sobti. Senior officials from CCI, GeM and various PSEs across the country were also present. The meet is being attended by 85 participants of 31 PSEs from diverse sectors. In her inaugural address, Ravneet Kaur said that amidst globalisation, the need for a robust market system that supports competition and also discourages any anti-competitive practices has been magnified, and the aim of Competition Law is to create an ecosystem where competition thrives. Emphasizing on the economic and social significance of Public Procurement, she complimented SCOPE for organising the workshop on this pertinent subject.

THE FREE PRESS JOURNAL

SCOPE organizes EPFO Interactive Session with PSEs



As part of furthering its capacity building interventions and creating unique opportunities of dialogue, Standing Conference of Public Enterprises (SCOPE) organized an interactive session between Employees' Provident Fund Organization (EPFO) and Public Sector Enterprises (PSEs) at SCOPE Complex, New Delhi. Atul Sobti DG, SCOPE; Brajesh Kumar Upadhyay, Vice Chairman, SCOPE and CMD, Goa Shipyard Ltd. and EPFO team led by R.M. Meena, ACC(HQ) addressed the session. The engaging interactive session between PSEs and EPFO officials was also webcasted live, and deliberated upon fostering a transparent, collaborative approach in managing employee welfare schemes with special focus on EPS 95. The session was participated by over 1000 participants virtually and 150 Senior officials in person.

THE NEWSMAN OF INDIA

International Delegation joins SCOPE's Women's Day celebration

Mar 09, 2024 10:11 pm | By TheNewsmanofIndia.com | Category: LATEST NEWS

THE NEWSMAN OF INDIA.COM

In March 2024 Standing Conference of Public Enterprises (SCOPE) observed the International Women's Day at SCOPE Complex, New Delhi. Shri Atul Sobti, Director General, SCOPE calling women 'multifaceted' and the 'embodiment of strength and exuberance', exhorted them to give their best and transcend to newer heights of success. The celebrations were joined by international delegates from 25 countries as part of VVGNLI program.



Meghalaya Times

RTI implementation in Meghalaya up to the mark



RTI implementation in ... "Recently in Gujarat I think more than 1,000 applications have been dismissed because they know that that person is harassing everywhere and sometimes they even think about monetary benefit from the act. So I think all the commissioners will realize this, be it PIO or FAA. Even though there is no provision, we all agree that all of our officers should not be harassed, especially with ulterior motives due to misuse act" he added.

SCOPE - GIZ, Germany organize workshop on 'Decarbonisation of India's PSEs and the Role of Green Hydrogen'



New Delhi: Taking its Green Skilling endeavour to the next mile, Standing Conference of Public Enterprises (SCOPE) in association with GIZ, Germany organized a Workshop on 'Decarbonisation of India's Public Sector Enterprises and the Role of Green Hydrogen' at SCOPE Complex in New Delhi.

The inaugural session was addressed by Shri Ajay Yadav (IAS), Joint Secretary, Ministry of New and Renewable Energy (MNRE); Dr. Stephan Hesselmann, Minister Counsellor, Economic Affairs, German Embassy; Shri Sandeep Kumar Gupta, Chairman, SCOPE & CMD, GAIL (India) Ltd.; Ms. Ruchika Drall, Deputy Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC); Shri Farhad Vania from GIZ and Shri Atul Sobti, Director General, SCOPE.

DAILY EXCELSIOR.COM

SCOPE organizes workshop on Decarbonisation of India's PSEs



JANUARY 14: Taking its Green Skilling endeavour to the next mile, Standing Conference of Public Enterprises (SCOPE) in association with GIZ, Germany, organized a workshop on 'Decarbonisation of India's Public Sector Enterprises and the Role of Green Hydrogen' at SCOPE Complex in New Delhi. The inaugural session was addressed by Shri Ajay Yadav (IAS), Joint Secretary, Ministry of New and Renewable Energy (MNRE); Dr. Stephan Hesselmann, Minister Counsellor, Economic Affairs, German Embassy; Sandeep Kumar Gupta, Chairman, SCOPE & CMD, GAIL (India) Ltd.; Ms. Ruchika Drall, Deputy Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC); Farhad Vania from GIZ and Atul Sobti, Director General, SCOPE. The workshop also featured presentations and discussions by experts of energy efficiency, energy of Power Indo-German Energy Forum; MNRE; MOEFCC; European Investment Bank; World Bank; etc. The workshop was a success as it provided a platform for green hydrogen, India's road to energy and climate finance etc. More than 300 participants from 45 PSEs attended the workshop, both physically and virtually.

Interface with Stakeholders



DG, SCOPE calls on Shri Sandeep Kumar Gupta, Chairman, SCOPE and CMD, GAIL (India) Ltd. at his office in New Delhi.



DG, SCOPE meets Shri Gurdeep Singh, CMD, NTPC at his office premises in New Delhi.



SCOPE hosts a Knowledge Sharing session on IKIGAI - Finding the Purpose of Life in collaboration with the Bajaj Capital team. The session was conducted by Shri Rajiv Bajaj, CMD – Bajaj Capital in association with his Global colleagues from Japan & Singapore. The session entailed inspirational life-changing narratives of people who have uncovered life's purpose through IKIGAI. The employees of SCOPE attended the session with much enthusiasm.



SCOPE at the Global Industrial Relations Summit on the theme of 'Re-envisioning Industrial Relations in the changing dynamics of the Business World' at FICCI Federation House in New Delhi.



DG, SCOPE meets Shri Aaquib Wani, Forbes 30 under 30 for Design '21, - an experiential designer & art director during a painting exhibition in New Delhi.

Climate Action opportunities for India's Public Sector Enterprises – a workshop by SCOPE & GIZ

On the 12th of March 2024, under the Indo-German Support Project for Climate Action in India, a workshop on 'Decarbonisation of PSEs and the Role of Green Hydrogen for Public Sector Enterprises (PSEs)' was organized by the Standing Conference of Public Sector Enterprises (SCOPE), GIZ India and the Indo-German Energy Forum. It provided a 'Multi-Level Perspective'¹ on the ongoing climate action developments in India, particularly decarbonization-related transformations at three levels, namely across the '*landscape*' (policies, regulations, finance mechanisms), in existing '*systems*' and evolving '*innovations*'. During the workshop, a comprehensive study "Decarbonising India – Potential for Electrification across India's Economy & Assessment of Electricity Needs" was released which is accessible at https://www.energyforum.in/fileadmin/user_upload/india/media_elements/publications/20240310_Decarbonising_India/Max_electrification_India.pdf

The following sections provide a brief insight into the solutions, ongoing efforts and financing

mechanisms that were discussed.

Climate action tools and solutions

Role of Climate Co-benefits in strengthening climate action

As part of the ongoing Indo-German Bilateral Cooperation, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) is implementing the Indo-German Support Project for Climate Action in India (CAP). The project is supported by the German Federal Ministry of Economic Affairs and Climate Action (BMWK) and Ministry of Environment, Forest, and Climate Change (MoEFCC) is the political partner in India. One of the focus areas of the project is the development of methodologies for the accounting of climate co-benefits, measured in Green House Gas (GHG) emissions or sinks, for programmes of the Government of India and activities of the public and private sector companies that do not have a specific climate focus.

There are several development programmes and policies currently being implemented in India which do not have climate impacts as their core objective.

However, these programmes do have climate impacts-mitigation, adaptation, and biodiversity- that are currently not measured and reported.

Climate co-benefits as a metric can very effectively show how development and climate can work together. Climate co-benefits methodologies for the urban forestry scheme can contribute to accurate accounting of **mitigation effects** of the scheme and can also measure **adaptation and biodiversity impacts** of the scheme. Flagship forestry programs like the Green India Mission have accrued several adaptation benefits over the last decade and have helped forest and forest-fringe communities deal with climate impacts like heatwaves, water shortages, and crop failures. As such, these adaptation co-benefits are extremely relevant to India's overall climate action.

PSEs have been identified as important stakeholders in the project. These methodologies can also support PSEs in quantifying the climate co-benefits of the forestry measures they have been undertaking. GIZ, in collaboration with SCOPE will organize consultations with PSEs,

¹ Geels, Frank. (2011). The Multi-Level Perspective on Sustainability Transitions: Responses to Seven Criticisms. Environmental Innovation and Societal Transitions. 1. 24–40. 10.1016/j.eist.2011.02.002.

to take their inputs and support the institutionalization of these methodologies in their existing reporting mechanisms, thereby strengthening climate action.

Existing solutions for decarbonisation and the role of Green Hydrogen: key findings from the technical session² :

The **Ministry of New and Renewable Energy (MNRE)** in February, 2024 has issued the guideline for the implementation of pilot projects for the use of Green Hydrogen in both Direct Reduced and Blast Furnace ironmaking process; and the substitution of fossil fuels with Green Hydrogen in a gradual manner. This will help in establishing a Green Hydrogen demand-supply ecosystem and leverage its potential for decarbonization and energy security. **Oil and Natural Gas Corporation (ONGC)** is planning to spend \$9.6–10.2 billion in next decade on developing a Green Hydrogen ecosystem. **National Thermal Power Corporation Limited (NTPC)** has initiated blending of Green Hydrogen in their PNG Network and is also running Hydrogen based Fuel-Cell Electric Vehicle (FCEV) Buses in Leh and Greater Noida. NTPC is also setting up Integrated Green Hydrogen Hub, Ultra Mega Renewable Energy Power Parks across India, and various projects on Hydrogen derivatives. **GAIL Limited** has

started blending Hydrogen in City Gas Distribution grid. **Oil India Limited** has commissioned India's first 99.9% pure Green Hydrogen pilot plant and has also developed a 60-kW capacity hydrogen fuel cell bus. **Indian Oil** has ventured into demonstration pilot plants for production of Green Hydrogen through water electrolysis using solar power, biomass oxy steam gasification, and CBG reforming for refuelling 15 Hydrogen Fuel Cell buses. **National Hydroelectric Power Corporation (NHPC)** is setting up Kargil Green Hydrogen Mobility Stations. **Bharat Heavy Electricals Limited (BHEL)** is setting up a Centre of Excellence for Electrolysers, Type IV hydrogen storage cylinders and a national testing facility for Type IV hydrogen storage cylinders. **THDC India Limited** has recently inaugurated India's largest Electrolyser End Fuel Cell-based Green Hydrogen Pilot Project. **Cochin Shipyard Limited** has launched India's first hydrogen cell ferry. **The Cochin International Airport Ltd (CIAL) and Bharat Petroleum Corporation Limited (BPCL)**, by combining their expertise and resources, aim to create the world's first Green Hydrogen plant and fuelling station located within an airport setting.

These ongoing efforts demonstrate the manner in which landscape (policy, program) level changes are being transformed into on-ground action through systems and innovations. Apart

from these, many collaborations, pilot studies, MoUs, agreements, etc. are in the pipeline and are directed towards one goal – strengthening the green hydrogen ecosystem in India.

Limestone Calcined Clay Cement (LC³) as another solution for decarbonization³

LC³ is a blend of clinker (typically 50%), calcined clay (typically 30%), crushed limestone (typically 15%) and gypsum (typically 5%). Since the calcination of clays requires almost half the energy required for the production of clinker and the calcination process does not emit any CO₂ from the decomposition of clays, the embodied energy and carbon of LC³ is seen to be significantly lower than ordinary Portland cement.

LC³ is currently the only commercially available technology that can further reduce the clinker content in cements in the large scales that are required by the cement industry in India. LC³ provides the Indian government an opportunity to create policies for the cement industry, that can allow the reduction of emissions from the cement industry, without compromising on the performance of the cement. LC³'s production processes and benefits were showcased during the workshop.

This cement also provides PSEs the opportunity to support

² Includes inputs from: Dr. Arvind Prasad Chaphekar, Deputy Secretary, Ministry of New and Renewable Energy; Shri Abhay Bakre; Director General, Bureau of Energy Efficiency; Dr. D.M.R Panda; General Manager (Hydrogen, RE), NTPC Limited; Smt. D Padma Executive Director, IOCL (Planning and Business Development) Indian Oil Corporation Ltd.

³ Inputs by Prof. Shashank Bishnoi, Indian Institute of Technology Delhi (LC³ cement);

infrastructure growth that is aligned with climate action.

Pathways to finance these solutions⁴

Financing mechanisms are key for the realization of solutions. Hence the workshop brought together key financial institutions and banks, that provided an overview of the financing options their respective institutions have to offer and their ongoing initiatives:

- **Indian Renewable Energy Development Agency (IREDA):** provides loans covering up to 70% of the project cost at 10-11% interest rates. Line of Credit also provided by IREDA to other Non-Banking Financial Corporation (NBFC) for on-lending to Green Hydrogen projects. IREDA has already sanctioned 1,200 crore rupees till date.

- **Power to X Hub by KfW:** The objective of PtX Development Fund is to encourage the production of green hydrogen and its derivatives in developing

and emerging economies, and to provide strong financial incentives to trigger further investments. The KfW's PtX Platform provides comprehensive advice on various funding and financing options for large-scale PtX projects in non-European countries and offers an integrated financing solution from a single source. The PtX Platform bundles funding offers from the German federal government and the KfW and puts together a suitable financing package for PtX projects. Interested PSEs may reach out of KfW representatives in India.

- **European Investment Bank:** Decarbonisation is among the key focus areas of the bank and it is interested to partner with PSEs in India given the strong mandate of the Government of India to bring forward energy security and address environmental objectives. EIB can finance projects aligned with their objectives which include expansion of RE, Green hydrogen, and anything that

contributes to climate action which also includes electrolysers and other components in the green hydrogen value chain. The bank usually finances larger projects and can provide financing in the form of debt.

- **World Bank:** Recently, WB approved a loan to develop one of the world's largest solar power plants "Rewa Ultra Mega Solar Power Project" in Madhya Pradesh. In June 2023, it has approved \$1.5 billion (with another tranche of \$1.5 billion forthcoming in 2024) in financing to accelerate India's development on low-carbon energy. Other than this, the World Bank has provided technical assistance to the Government of India to establish the sovereign green bond program. ■

This article summarises key highlights of select sessions of the workshop. It is jointly developed by Ms. Jasprit Kaur (Climate Change Advisor, GIZ India) and SCOPE.

⁴ Inputs by Dr. Thomas Engelmaan Manager at PtX Hub, KfW; Smt. Nina Fenton Head of Regional Representation, European Investment Bank (EIB); Smt. Surbhi Goyal Senior Energy Specialist, World Bank



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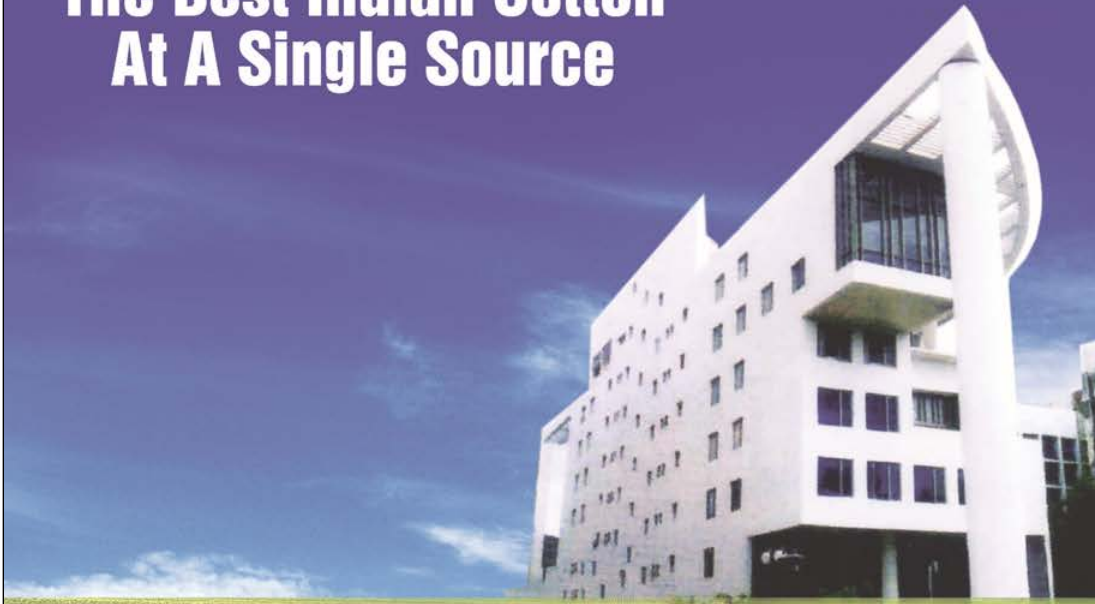
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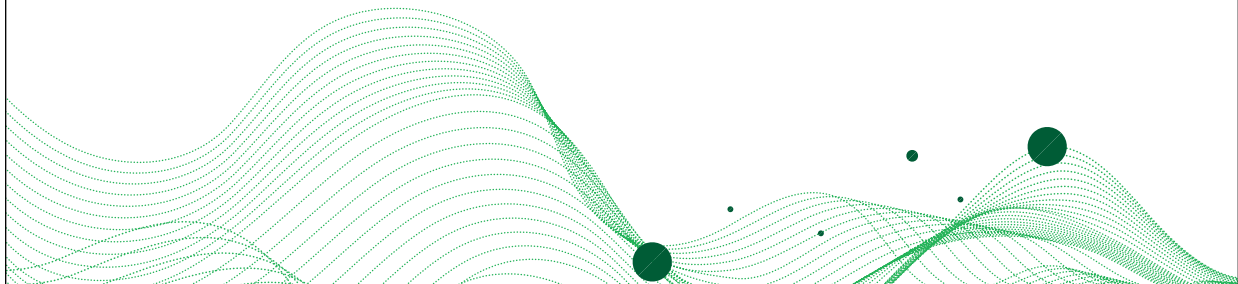
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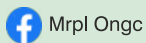


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